

Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
New Teen-Age Lingo
Race for Upper Space
Huge Air Conditioning
Installation
Whirlpool on the Beam
Out of Our Mailbag

Stories of the Week

In a supermarket Bobbie tried to be helpful. He brought Mom a package.

"No, dear, go put it back," she shuddered. "I'd have to cook that one."

Proudly did Johnnie show mummy his pencil drawing of a cowboy in a saloon. It had to be explained to her, natch.

"Don't feel bad about the saloon," Johnnie added. "My cowboy isn't going to drink anything. He's just going to shoot a man."

New Teen-Age Lingo

In the high school set, "see you later alligator," has been replaced by:

"Meet you tonight, satellite."

Race for Upper Space

Cutest joke we've seen or heard about competition for conquest of Space Travel comes from a subscriber in Denmark. To wit:

Russia's "Sputnik" radios America's "Explorer":

"Let's talk it over. After all, we both speak German."

True. Captured German rocketeers on both sides of the mythical Iron Curtain were the contestants. And bureaucratic red tape was their mutual handicap—whether Communist or Pentagon bureaucratic were involved.

Is Russia ahead of us scientifically? A double-barrelled NO!

Three phases are involved in developing a Ballistic Missile:

(1) Getting it up there. Problem: *propellant*.

(2) Bringing it back down to Earth. Problem: *heat*.

(3) Hitting the target. Problem: *guidance*.

The Russkies were, and possibly still are, ahead of us in Phase One. We are ahead of them in Phases Two and Three—far ahead.

There is no evidence that they solved the re-entry problem. (Phase Two). We have.

There is plenty of evidence that Russian scientists are nowhere near us in producing self-sufficient guidance systems (Phase Three). We pioneered (Concluded on Page 12, Col. 1)

Great Day Coming!

(Guest Editorial by Bruce Henderson)

Westinghouse Electric Corp.

Editor:

Your editorial, "Is Accelerated Scientific Progress Ignored By Our Industry?"—has been the subject of much conversation and discussion among members of our staff here at Staunton. To answer your question, we think it has been ignored—to an incredible extent.

When I first became interested in the air conditioning industry twenty odd years ago, the processes, procedures, and equipment were essentially no different from those of the present day. My own business career took me far afield from air conditioning but when I returned after 20 years it seemed to me little had changed. We have a young sales student here who pointed out to me that the equip-

(Concluded on Page 18, Column 1)

ARI To Issue B.t.u. Ratings In Mar. Adopts Policy on Advertising

NEW ORLEANS—First publication of room air conditioner capacity ratings for 1958 models in B.t.u. per hour will be made by Air-Conditioning & Refrigeration Institute about March 15, it was decided at a meeting of ARI's Room Air-Conditioner Section here last Monday.

Virtually all major producers of room units were represented at the session in the Roosevelt hotel, presided over by Robert Cassatt of York Corp., section chairman. All available ratings will be forwarded to ARI by manufacturers in time to meet the March 15 publication date, it was stated.

The room unit manufacturers at the meeting, accounting for more than 90% of U. S. production, were unanimous in forecasting that more room air conditioners will be sold in 1958 (Concluded on Page 4, Col. 5)

Trane Co. Plans In Residential Field Revealed

DETROIT—A look into the "advance plans" of the Trane Co. for its entrance into the field of year-round residential air conditioning in particular, and a discussion of the residential air conditioning field in general, formed the "cover story" in the Feb. 8 issue of *Business Week* magazine.

As reported in issue of AIR CONDITIONING & REFRIGERATION NEWS last year, the Trane Co. has been building a new plant in Clarksville, Tenn. for the manufacture of a line of residential air conditioners, first models of which are expected to hit the market this summer.

Business Week interviewed Trane's President D. C. Minard for its report on that company's plans for entrance into the field of residential air conditioning, and also took the opportunity to take an over-all look at the progress and current status of (Concluded on Page 8, Col. 1)

Does your customer know—

what you are prepared to do for him? Don't be too sure! Read George Lucas' eye-opening experience in next week's COMMERCIAL SECTION where he tells you what he did to get his story across—and pep up his business.

AAF Fire Won't Bar Operations

LOUISVILLE, Ky. — Although total estimated damage of \$1 million resulted from a blaze which razed American Air Filter Co., Inc. plant 2 here and an adjoining frame warehouse of another company, the fire won't have much effect on shipments or over-all AAF operation in Louisville, an AAF spokesman said.

Starting in No. 2 structure which produced small unit air filters and spreading to the wooden building, flames destroyed an estimated \$500,000 worth of equipment and supplies in the two-story brick building housing the filter plant.

American Air Filter leased the plant from R. C. Tway Co., whose adjoining warehouse was also destroyed by the fire. An official of the latter firm said loss of the brick building and the one-story warehouse and building materials it contained ran the total damage to \$1,000,000 or more.

(Concluded on Page 35, Col. 5)

Room Unit Plan 'Guarantees' Dealer Profit

Must Charge \$30 over Cost on Every Unit

NEW YORK CITY—A "guaranteed profit" program for its dealers handling room air conditioners, whereby every dealer which it franchises is obligated to charge consumers no less than \$30 above his cost on each unit sold, has been set up by Carleton-Stuart Corp., Carrier distributor here.

The agreement not to sell at less than \$30 above cost on current models of room air conditioners is signed as a separate agreement by the dealer, at the same time that the franchise agreement is signed. Failure to live up to the agreement to sell room air conditioners at no less than the stipulated minimum price will result in "prompt action by the distributor," according to Carleton-Stuart officials.

Policing of the agreement will (Concluded on Page 35, Col. 1)

'Hypnotic Optimism' May Harm Industry

TORONTO, Ont., Can. — "Over-optimistic predictions about our industry may hypnotize people into inaction and harm, rather than help the refrigeration and air conditioning business."

This was a major point in a luncheon talk given by John Morrill, general manager of the Evansville Div., Bendix-Westinghouse Automotive Air Brake Co., at the 19th annual educational convention of the Refrigeration Service Engineers Society of Canada recently.

"People who make such rosy predictions point to the rapid growth of the industry in the last seven years as a guide to what we can expect," Morrill (Concluded on Page 35, Col. 2)

AFL-CIO

Bans Boycotts Among Unions

MIAMI BEACH, Fla.—Acting to prevent passage of Federal legislation to control labor union affairs, the AFL-CIO executive council meeting here banned boycotts by one AFL-CIO union against another.

Ruling that none of its 137 affiliates has the right to refuse to work with materials made by members of another AFL-CIO union, the executive council set up machinery to handle complaints if the ban is violated. Disputes over boycotts would be referred to David L. Cole, im- (Concluded on Page 35, Col. 4)

BEHIND PAGE ONE . . .

Why Sell Through Distributor?

Commercial Distributor Tells Manufacturers
What He Would Do If He Were In Their Position 15

Wholesaler Inventory

Overbuying, Stocking Too Many Gadgets
Brings Obsolete Inventory Problems..... 17

Causes of Draft Sensations

What Service Engineer Can Do To Balance Unit 18

Home Builders Show Pictures..... 23

Air Distribution Requirements In

Year-Round Air Conditioning..... 28

Industrial Air Conditioning

Bostich Co. Installation Provides
Flexibility, and Allows for Expansion..... 29

Technical Center

Used Driers 30

Changes In ME-13

Full Text of New Regulation with
Explanation of Pertinent Changes..... 32

High Court Ruling Doesn't Affect Local RACCA Joint Fund Agreements—Kromer

CLEVELAND—Since none of the recently negotiated local joint industry trust funds are dominated by a union joint committee board, Refrigeration & Air Conditioning Contractors Association "is not concerned with the effect of the recent Supreme Court ruling," Ray Kromer, executive vice president, announced.

Commenting on the Feb. 3 AIR CONDITIONING & REFRIGERATION NEWS article reporting

the High Court decision, Kromer said local RACCA and United Association joint funds—such as are a part of the New Jersey, eastern Pennsylvania, and Miami, Fla. agreements—are operated by a trust fund. Neither contractors nor union members receive any compensation from this fund, Kromer pointed out. "This includes trust officers and committee members."

(Concluded on Page 35, Col. 1)

Dependable Prescription for Refrigeration & Air Conditioning Equipment

R_x Always Specify READING Copper Tubing



Made by Copper Tube SPECIALISTS

READING TUBE CORPORATION

EMPIRE STATE BUILDING NEW YORK 1, N. Y.

WORKS: READING, PA.

First 10 Months of '57

1, 2-Hp. Compressor Shipments Grab Bigger Share of Output, ARI Says

WASHINGTON, D. C.—Compressor body shipments by U.S. manufacturers during the first 10 months of 1957 were more than 15% below similar figures for the same period of 1956, it is reported by Geo. S. Jones, Jr., managing director of Air-Conditioning & Refrigeration Institute.

The figures are based on reports to ARI by companies whose output of compressor bodies is estimated to represent more than 95% of U.S. production. They do not include shipments of bodies produced for use in household refrigerators.

While the over-all total of compressor body shipments continued below 1956 figures, ship-

ments of 2 and 1-hp. bodies, and those designed for use in automotive air conditioning, continued to increase their over-all share of the total output and to show gains over 1956 shipments. The sharpest drops were in shipments of 1/2-hp. and, to a lesser extent, 3/4-hp. bodies.

Total shipments of compressor bodies for the first 10 months of 1957 amounted to 3,536,363, compared with a total of 4,202,228 in the same period of 1956. October shipments of all categories in 1957 were 202,192, against an October total in the previous year of 341,955.

Ten months' shipments of 2-hp. bodies in the 10-month period of 1957 were reported as 194,594 units, a gain of almost 200% over the 67,287 units shipped in January-October 1956. Similarly, shipments of automotive-type compressors jumped from a total of 235,791 in the first 10 months of 1956 to 413,800 in the same period of 1957, and 1-hp. compressor bodies increased from 787,472 units to 814,600 units in the corresponding periods.

Shipments of 1/2-hp. bodies dropped from 414,673 units in the first 10 months of 1956 to 90,573 in the same period of 1957, and 3/4-hp. shipments slipped from 679,815 to 354,754 units in the same comparable periods.

Figures on manufacturers' shipments, broken down by categories, together with names of reporting companies, follow:

MANUFACTURERS' SHIPMENTS OF COMPRESSOR BODIES

Produced by Reporting Companies (Except for household refrigerators) Shipments Including Exports

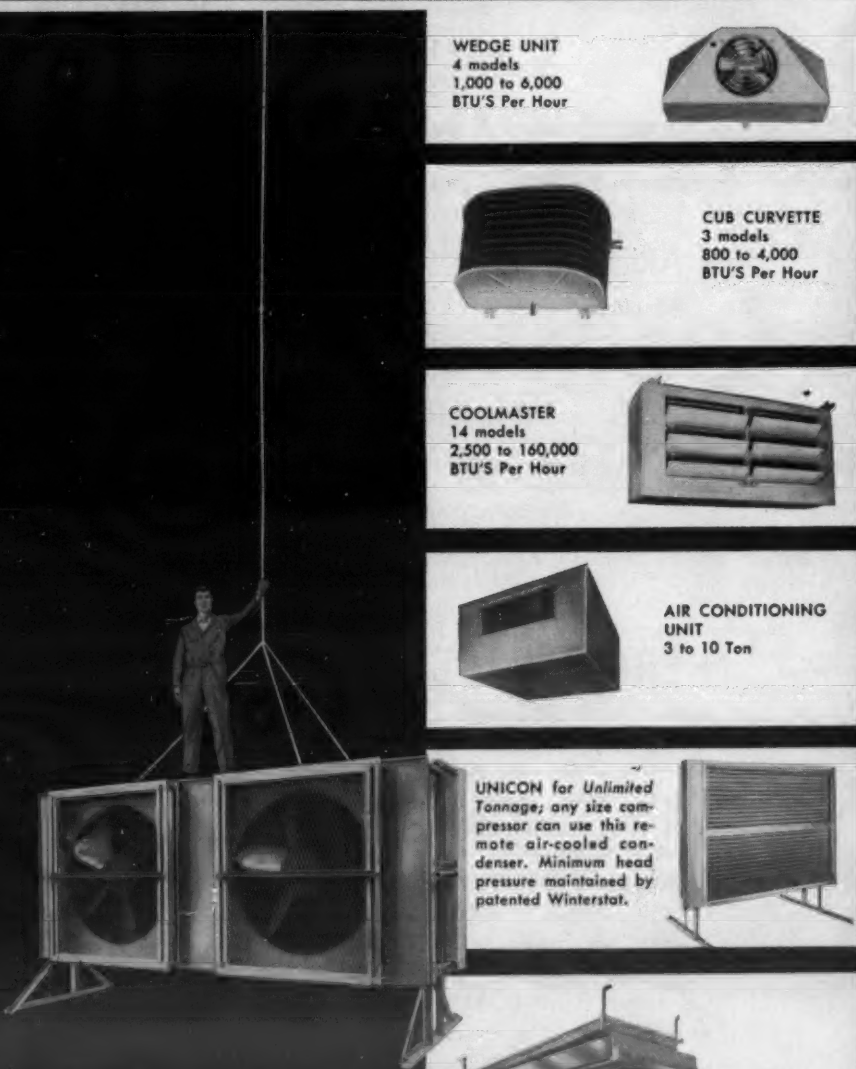
Horsepower*	Oct., 1957	Jan.-Oct., 1957
1/4 & under ...	25,352	362,866
1/4 ...	75,347	668,294
1/2 ...	18,379	211,580
3/4 ...	7,432	90,573
1 ...	4,553	354,754
1 1/2 ...	24,616	814,600
2 ...	6,463	208,418
3 ...	6,255	194,594
4 ...	4,914	88,961
5 ...	3,584	65,438
7 1/2 ...	1,591	39,038
10 ...	449	9,076
15 ...	326	3,182
20 ...	142	1,941
25 ...	143	1,641
30 & over ...	659	6,292
Total ...	190,905	3,121,248
For Ammonia Refrigerant—Total	147	1,315
For Automotive Air Conditioning—Total	21,840	413,800
Grand Total ...	302,192	3,536,363

*For all refrigerants except ammonia (excluding units for automotive air conditioning).

This summary includes all compressor bodies shipped by the reporting companies regardless of whether they were shipped separately or incorporated into a condensing unit or unitary end-use product (such as a room air conditioner, display case, freezer, or commercial refrigerator). Shipments for export are included. Shipments for household refrigerators are not included.

In order to avoid duplication of reporting, shipment figures were requested only from companies that assembled the machined compressor casting with the components necessary to make a complete compressor or motor-compressor assembly.

Reporting companies: Airtemp Div., Chrysler Corp.; Bendix-Westinghouse Automotive Airbrake Co.; Brunner Div., The Dunham-Bush, Inc.; Carrier Corp.; Copeland Refrigeration Corp.; Curtis Mfg. Co.; Refrigeration Div., Frick Co., Inc.; Frigidaire Div., General Motors Corp.; General Electric Co.; Kelvinator Div., American Motors Corp.; Lehigh, Inc.; Tecumseh Products Co.; Trane Co.; The Vilter Mfg. Co.; Westinghouse Electric Corp.; Worthington Corp.; York Div., Borg-Warner Corp.



KRAMER PRODUCTS

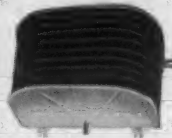
Have earned an unsurpassed reputation for leadership and dependability that makes it easy for wholesalers and contractors to grow and prosper.

Designed and engineered to the highest standards, users of KRAMER products stay sold. Pictured are a few of the many KRAMER products—each a standard of the industry.

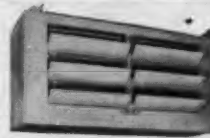
WEDGE UNIT
4 models
1,000 to 6,000
BTU'S Per Hour



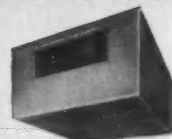
CUB CURVETTE
3 models
800 to 4,000
BTU'S Per Hour



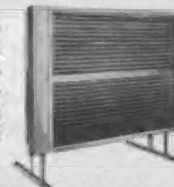
COOLMASTER
14 models
2,500 to 160,000
BTU'S Per Hour



AIR CONDITIONING UNIT
3 to 10 Ton



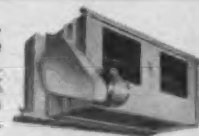
UNICON for Unlimited Tonnage; any size compressor can use this remote air-cooled condenser. Minimum head pressure maintained by patented Winterstat.



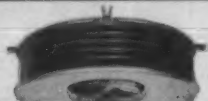
COIL AND BAFFLES
15 Stock Sizes



THERMOBANK automatic re- evaporator hot gas defrost systems. There is a THERMOBANK for every application from 36° to minus 75°.

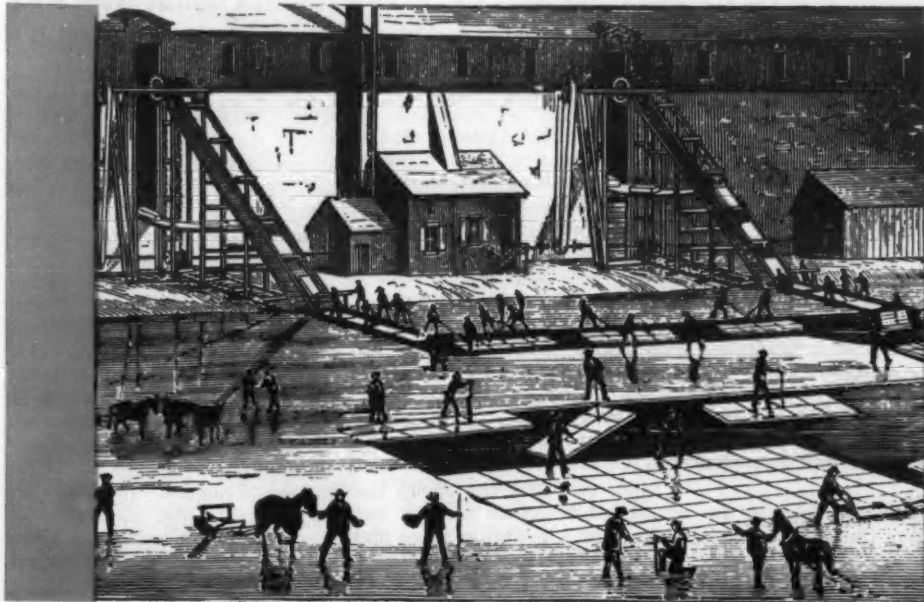


LARGE CURVETTE
7 models
3,500 to 30,000
BTU'S Per Hour



KRAMER TRENTON CO. • Trenton 5, N.J.

44 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER



Reproduced from "Journal of the Franklin Institute"

The year was 1918

Northern cities still depended heavily on natural ice . . . cut from ponds and waterways nearby and stored in insulated ice houses or imported from Maine and other ice-producing states. More than 2,500,000 tons were harvested on the Hudson River alone in the winter of '17 and '18. But, even then, a precocious youngster known as mechanical refrigeration was foretelling the decline of the industry. In a few short years, the Hudson River ice houses would be razed . . . or sold to truck gardeners who found them admirably suited to the growing of mushrooms.

1918 was the year of Copeland's founding.

1958

Years-ahead Copeland engineering retains industry leadership

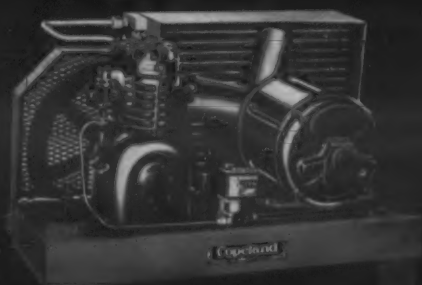
Copeland has led the field in developing direct-drive hermetics into rugged, dependable cooling components . . . the Copelametics. Engineers have "designed out" the primary causes of compressor breakdowns . . . belts, seals and manual oiling systems. They have made their dream-compressors practical, performance leaders by "designing in" accessibility. On those rare occasions when servicing is needed, it can be done on the spot. Copelametics never need be returned to the factory.

These and other outstanding features . . . combined with Copeland quality-conscious production and nationwide field service

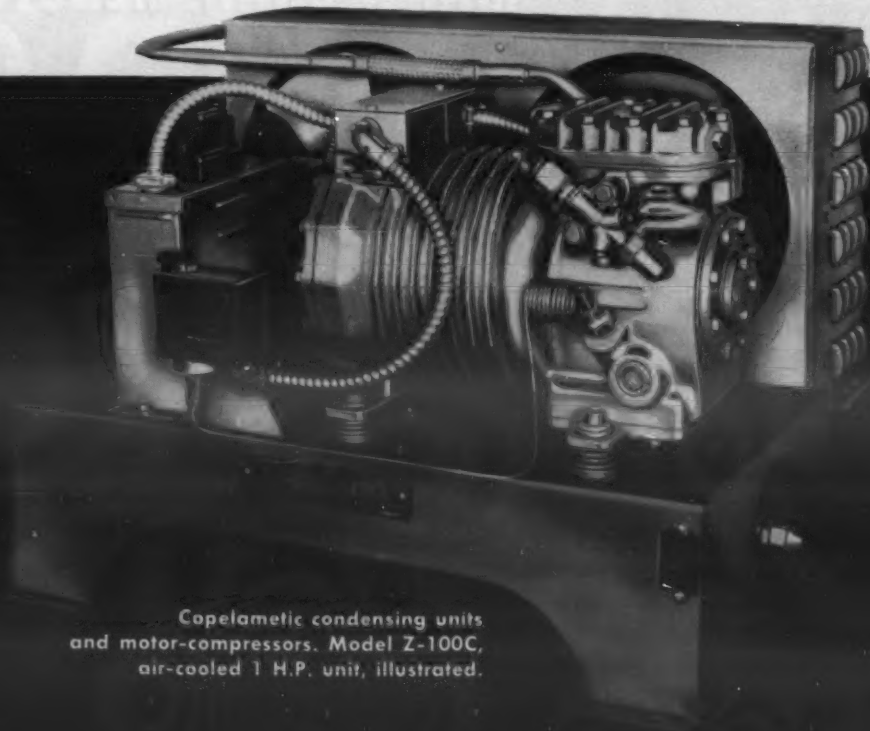
organization . . . make Copelametics the first choice of performance-wise manufacturers, engineers and contractors. The millions of units now serving in quality products and installations throughout the world are testimony to the fact.

When you need dependable condensing units or motor-compressors, investigate Copelametic. The line is complete . . . it includes a model for your application: Air-cooled $\frac{1}{4}$ H.P. through 10 H.P. and water-cooled $\frac{1}{8}$ H.P. through 10 H.P. Write for specifications and performance data.

Copelaweld motor-compressors.
Welded hermetics,
 $\frac{1}{2}$ H.P. through 2 H.P.



Belt-driven condensing units
and compressors, $\frac{1}{4}$ H.P.
through 7 $\frac{1}{2}$ H.P.



Copelametic condensing units
and motor-compressors. Model Z-100C,
air-cooled 1 H.P. unit, illustrated.

SINCE 1918

Copeland
REFRIGERATION

40 Years of Pioneering Progress in
Refrigeration and Air Conditioning

CORPORATION, Sidney, Ohio

NEMA Reports

'57 Refrigerator Sales Slump In First 11 Mos.

NEW YORK CITY — Despite a sharp rise to 246,400 units sold last November from the 211,600 sold in the like 1956 month, total refrigerator sales for the first 11 months of 1957 slumped to 3,135,400 from the 3,442,600 of the preceding year's period.

In reporting total industry sales including exports, National Electrical Manufacturers Association listed an upturn in freezers last November, too. Sales rose to 60,600 from the 54,400 of the same 1956 month. Total sales for the first 11 months of last year, though, skidded to 877,600 from the 917,600 of the like year-previous period.

Sales and Management Topics of Course

PHILADELPHIA — Sales methods and business management instead of technical training are being emphasized in this year's course for contractors sponsored by the Air Conditioning Div. of the Electrical Association of Philadelphia.

There were 174 enrollees at the first session.

Classes are held from 8 to 10 p.m. every Thursday in Philadelphia Electric Co.'s Edison Bldg. Opening session was Jan. 23. Final class will be March 13.

Topics scheduled for discussion during the eight-week course include basic fundamentals of selling, sales communications, selling as related to commercial and residential air conditioning and the industry as a whole, and management. Speakers

are Joseph C. Young, Agents Insurance Co. of North America; Paul S. Beaver, Penn State university; Irv Pittleman, General Electric Co.; William Nessel, Minneapolis-Honeywell Regulator Co.; Thom Muir, Commercial Refrigeration & Air Conditioning; Ted Skoglund, Carrier Corp.

Distributor To Celebrate Anniversary by Exhibition

HIGHLAND PARK, Mich. — W. T. Andrew Co., plumbing and heating supplies distributor in this Detroit suburb, announced plans to celebrate its 25th anniversary with an exposition April 1-3 in Veterans Memorial building.

The project will feature displays by more than 25 manufacturers in home heating, plumbing, air conditioning, and industrial piping.

In Columbus

Group To Emphasize Sound Management

COLUMBUS, Ohio — Sound management practice and policy will be emphasized in a series of four monthly meetings of the Heating, Air Conditioning and Sheet Metal Association of Columbus. Meetings begin in February.

Following closely behind a successful drive to increase membership, recurring elements of cost in the normal home project where quality warm air furnace installation is specified will be examined.

Since mid-1957 the group has expanded activities after it had set up an association office and named Warren C. Armstrong executive secretary and counsel. Ed Bogen is president.

L. Smith Heads New ASRE Group In Central Mich.

ADRIAN, Mich. — Formation of a Central Michigan section of the American Society of Refrigerating Engineers was carried out at a recent meeting here.

Lew Smith, research and advance design manager of Acme Industries, Inc., is the chairman of the new section. Frank Crotser, chief refrigeration engineer, Revco, Inc., is first vice chairman; and Walter Hassenplug, vice president in charge of engineering, Acme Industries, Inc., is the second vice chairman. William Macbeth of Tecumseh Products Co. is secretary; and Robert Price, vice president in charge of sales, Primore Sales, Inc., is treasurer of the group.

T. J. Ammel, Kelvinator Div., American Motors Corp., section director for Region 7, and H. P. Tinning, assistant secretary, ASRE, assisted in the formation proceedings.

Hermann F. Spoehrer, ASRE president, was scheduled speaker, but was delayed en route to the meeting by inclement weather. Prof. Hugh Keeler of the University of Michigan College of Engineering, and Phil Redeker, editorial director of AIR CONDITIONING & REFRIGERATION NEWS, gave brief talks to the new section.

Room Unit Sales--

(Concluded from Page 1, Col. 2)

than in any previous year. The section members endorsed two statements of policy with regard to advertising of room units.

In the first, the manufacturers agreed that "in all national advertising, and in local advertising where possible, unqualified claims for 7½-ampere room air conditioners, such as 'no special wiring needed,' 'runs on normal house current,' 'just plug it in,' 'no wiring problems,' or any other claim stating or implying that no changes or alterations in electrical installations are needed, shall not be used."

Also, "that any claims for ease of installation shall be qualified to give adequate recognition to existing laws in all areas to which the advertising is disseminated."

The second statement, approved "in the public interest and to protect the public confidence in room air conditioner advertising," sets out the consensus of the group that "in all room air conditioner advertisements which state price and/or inference of large size, capacity, or performance, such advertisements also should include the model number of the unit and its B.t.u. capacity in accordance with ARI Standard 110."

At the same time, the section "condemned the use of false and deceptive comparative price claims in advertising," and urged all national advertisers "who use comparative prices to use only price or value claims which are accurate and provable."

The two statements of policy were adopted on recommendation of the section's public relations committee.

So Halstead & Mitchell Engineers Said . . .



**COUNTERFLOW, CLEANABLE
WATER-COOLED CONDENSERS
MAKE "CHAIN-REACTION" SALES**

A CHAIN REACTION—one sale leads to another when users experience the twin advantages of H&M's Water-Cooled Condensers—peak efficiency and lowest maintenance.

Double-tube design and counterflow introduction of water and refrigerant assure most efficient heat transfer. Refrigerant flows through the outer tube and the water through the inner tube for maximum heat interchange.

Removable headers permit easy water tube cleaning with a simple, accessory cleaning tool. Scale and sludge

which reduce heat transfer are removed without harmful chemical cleaners. Condenser capacity is maintained at clean-tube performance ratings for unit lifetime.

Condenser compactness makes these units ideal for conversion of under-capacity air-cooled refrigeration systems. All H&M units are U/L approved for use with refrigerants -12 or -22.

Call your wholesaler or write Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.

ONLY HALSTEAD & MITCHELL OFFERS THIS WIDE CHOICE

HEAVY DUTY (Type T) condensers have a highly favorable fouling factor and are designed for long service between cleanings. ¼ through 25 tons.

STANDARD DUTY (Type EL) are made with extended surface water tubes, ideal for water-cooled systems under all average conditions. ¼ through 3 tons.

REPLACEMENT CONDENSERS (Type R) are shorter, higher condensers designed for use in package air conditioners. Easily installed. 1½ through 10 tons.

SEA WATER CONDENSERS (Type SW) are made with cupro-nickel water tubes and naval brass headers for resistance to impure water. ¼ through 25 tons.



'Mighty Mite' Portable Leads Welbilt's Smaller 1958 Room Air Conditioner Line



THIS IS a Welbilt "Power Master" room air conditioner of 1 hp., 7½ amps. 115 and 220 v. Measurements are 22½ by 13½ by 15½ in.



"WALL SLIM" model comes in 1, 1½, or 2 hp. and measures 26½ by 18½ by 16½ in.

MASPETH, N. Y. — Leading off with a new "Mighty Mite" portable room air conditioner designed for use in casement or double-hung windows, Welbilt Corp. has announced its lower-priced 1958 air conditioners, smaller than last year's models.

Mighty Mites are ½-hp. 115-v. units weighing 55 lbs. in a cabinet measuring 14½ in. wide, 10½ in. high, and 19 in. deep.

Two other room air conditioner series are also offered. The "Wall Slim" is a 1, 1½, or 2-hp. unit 26½ in. wide, 18½ in. high and 16½ in. deep.

"Power Master" models are 1-hp., 115-v., 7½-amp., and 230-v. units which weigh 120 lbs. They measure 22½ in. wide by 13½ in. high by 15½ in. deep.

Howard Landis, sales manager of Welbilt's Air Conditioning Div., claims "a unique feature of the Power Master line is a 100% exhaust which pumps out stale air and smoke from a room."

"Quiet Guard" is a claimed exclusive device on all Welbilt custom air conditioners, designed to deliver quieter air to a room and improve circulation of cool air in the room. This, Landis said, functions by blocking air noise with an acoustic shield. It also ups the velocity and penetration of cool air into the room.

"This feature will be used in addition to high and low cooling speeds of the fan motor to insure comfort and quiet during

unit operation," he continued.

Other highlights of the line, Landis pointed out, include thin 2-hp. units in a 16½-in. deep chassis which have no side or top louvers to permit mounting in any window or built-in-wall. The 1½-hp. models will also be made in "thin" chassis.

Mighty Mite portables will fit through the opening of a single light of a casement window by removing one pane of glass, it was stated. Projection into the room is said to be about 6 in.

New 1-hp., 7½-amp., 115-v. units may be plugged into any outlet where wiring is adequate and conforms to local codes, Landis explained. Two sizes will be offered.

Units of 1½-hp. operating on 115 v. and producing high ca-

capacity are also spotlighted. "Easy to handle 1-hp. models are smaller in size," Landis said.

He added that Welbilt is taking action on the growing trend to install air conditioners through-the-wall by marketing two entirely separate series of air conditioners. One is packed with window installation kits, the other with a sleeve for in-wall installation. Both are priced the same.

Model numbers, description, and suggested list prices were announced as follows:

Model & Description	Suggested List
SWJ2*, 1 hp., 115 v., 1.5 amp. . .	\$199.95
SWP2, 1 hp., 115 v., 12 amp. . .	209.95
SWO2, 1 hp., 115 v., 7.5 amp. . .	229.95
SWU2, 1½ hp., 115 v., 12 amp. . .	269.95
SWL2*, 1 hp., 208 v.	199.95
8WM2*, 1 hp., 230 v.	199.95
8WR2, 1 hp., 208 v.	209.95
8WS2, 1 hp., 230 v.	209.95
8WT2, 1 hp., 230 v.	239.95
8WV2, 1½ hp., 208 v.	269.95
8WV2, 1½ hp., 230 v.	269.95
8WX2, 2 hp., 208 v.	299.95
8WY2, 2 hp., 230 v.	299.95

*Power Master. All others Wall-Slim.

St. Louis Distributors

Report 172% Rise In Nov. Room Unit Sales

ST. LOUIS — Area distributors reported a huge 172.2% gain in air conditioner shipments to dealers last November as compared with the same 1956 month, the Union Electric Co. indicated.

In the climb to 19.5% increase over October, 1957 distributor shipments were 147 ¾-hp. and under air conditioners in November along with 49 of 1 hp. and over for a total of 196. Comparative figures for October and the preceding November were 107 and 57 for 164 and 33 and 39 for 72.

Total air conditioner shipments through the first 11 months amounted to 19,782, a 13.2% dip from the 22,801 of 1956.

Remington's '57 Units



NEW Remington Corp. 1-hp. "Hide-A-Way" in-wall unit shows movable mounting flange. It is 29¾ by 14 by 15¼ in. and larger "Super Hide-A-Ways" are available in 1½ and 2-hp. sizes. Units are offered in addition to Remington's new 1958 line of window air conditioners along with heavy-duty 2½-hp. residential units, ½-hp. home dehumidifier, and 1, 1½, and 2-hp. industrial dehumidifiers.

November shipments of dehumidifiers by reporting distributors totaled 37, compared with 18 in October and 2 in November, 1956.

Dehumidifier shipments amounted to 1,572.

For your

REFRIGERATION, AIR CONDITIONING and HEATING UNIT NEEDS . . .



Specify Quality-Controlled PHELPS DODGE COPPER TUBE!

- All tempers and sizes for use in original equipment.
- Straight length tube tempered to meet your bending and expanding specifications.
- Quality-controlled throughout manufacture to assure finest tube properties.
- Tubes degreased and capped, or dehydrated and sealed, if required.
- Deliveries geared to your production requirements.

'57 Room Unit Sales Up In West Penn Area

GREENSBURG, Pa. — Dealer sales of room air conditioners during 1957 in the areas served by West Penn Power Co. jumped to 2,462 over the 1,838 of 1956, the utility reports.

Dehumidifier sales also rose for the 12-month period to 510 over the 379 of the preceding year, the utility added.

Household refrigerator sales dropped off to 13,016 from the 17,614 of 1956. Freezer sales declined from 4,953 to 4,656. Refrigerator-freezer combination sales amounted to 4,506.

First for Lasting Quality from Mine to Market!



PHELPS DODGE COPPER PRODUCTS CORPORATION

SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Fort Wayne, Greensboro, N. C., Houston, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N. Y., San Francisco, St. Louis, Seattle, Washington, D. C.

Amana® THE MOST AIR

New Designs — Priced to Guarantee Leadership in Every Market!

No other line offers so many outstanding models and such a wide range of full-profit prices. No matter what your market demands, you have the answer in product and price!



THE Amana Year 'Round

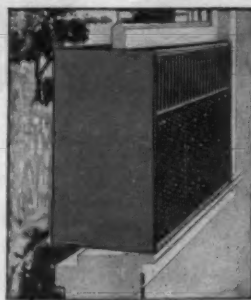
Your customers will marvel at the way it actually thinks for itself! Supplies either cold or hot air automatically to maintain the temperature previously selected. Revolutionary reverse cycle heat pump provides heat without costly-to-operate electric heating coils. Packed with the most exciting, sales-making features ever offered. Available in 1, 1½ and 2 h.p. models.

THE Amana Air Command

Completely automatic operation. Adjusts itself to maintain the temperature selected. 2-speed Fan provides high speed for maximum cooling and low speed for night cooling with whisper quiet operation. Air Deflector Grille rotates a full 360° to provide even flow of cool draft-free air in any direction. Available in ¾, 1, 1½ and 2 h.p. models.



THE Amana® Slim-LO



15 1/2"

The most beautiful air conditioner you've ever seen! Just 15½ inches deep so there's no overhang inside or outside window...no interference with drapes or curtains. Another Amana quality product that adds an extra dimension to your sales. Available in ¾ and 1 h.p. models.



THE Amana® DECORATOR



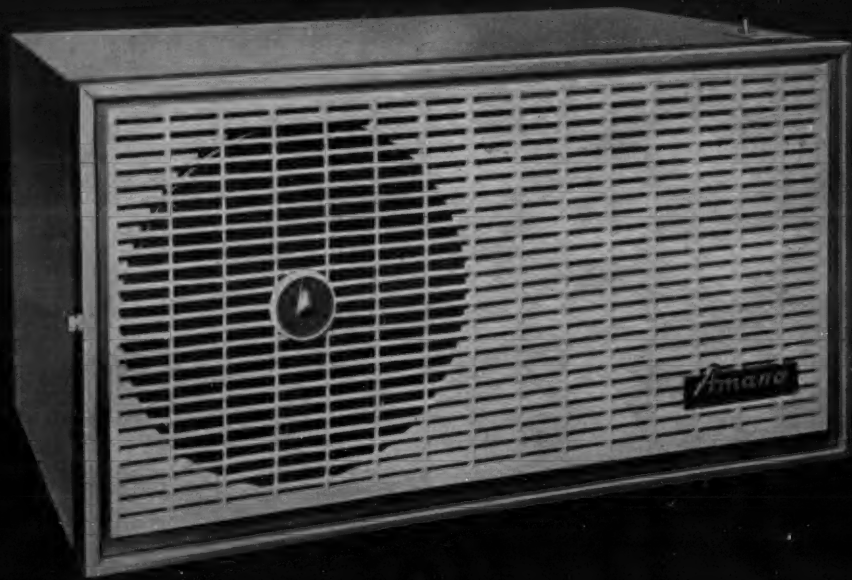
Today's most fashionable air conditioner! Panel fabrics can be changed in minutes to match any room's decor. A style leader that leads to extra sales. Available in ¾, 1, 1½ and 2 h.p. models.

HARMONIZES WITH ANY ROOM.
Blends with drapes, slip-covers or other furnishings.



Backed by a Century-Old Tradition of Fine Craftsmanship

COMPLETE, MOST PROFITABLE CONDITIONER LINE FOR 1958



THE *Amana Compact* Never Before So Much Cooling Capacity In So Compact A Unit!

A great new Amana quality-built air conditioner comparable in size to the so called portables but with 2 to 3 times the cooling power. The Amana COMPACT gives "big unit" performance though its cabinet is just 13¼ inches high, 25 inches wide, 16¼ inches deep. And this 1 h.p., 7.5 amp unit needs no special wiring*—just plugs into any convenient outlet. You'll dominate the market price-wise against any competition and still get top mark-up with the Amana COMPACT!

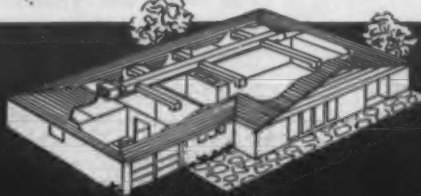
*Where local codes permit

Amana® OFFERS A COMPLETE MERCHANDISING PROGRAM TO BOOST YOUR SALES WITH THE **3** BIGGEST EXTRAS IN AIR CONDITIONING TODAY!

- 1** Completely new installation system... the simplest known... takes half the normal time, cuts cost to a minimum. You can profit on every installation.
- 2** The Amana is the quietest of all air conditioners. Dramatic side-by-side tests with any other air conditioner will prove it to your customer. Yet Amana units actually move a much greater volume of air with their completely new type fan assembly.
- 3** Although all Amana air conditioners are quality-built to outperform all others, they are most competitively priced. Yet you enjoy a full profit on every model. This year's Amana Air Conditioner line makes you the competition!



Want a fabulous free trip to gay Páree?
Ask your Distributor for complete details.



Amana's NEW LOW COST CENTRAL AIR CONDITIONING

A tremendous profit opportunity for you! Ask your Distributor about Amana's complete merchandising approach for the big unit sales—big unit profits.

AMANA REFRIGERATION, INC.

AMANA 14, IOWA

Trane's Home Conditioner Plans--

(Concluded from Page 1)

the residential air conditioning field.

(Representatives of the Trane Co. said that the article, under the headline "From Industrial Goods Into a Stubborn Consumer Market," was an accurate report, but some exception was taken to the choice of words which seemed to say that Trane was "switching" to the home market from the industrial and commercial field. "We're not about to turn our backs on an \$80 million a year business" was the comment.)

Trane is not exactly new to the air conditioning business, it is pointed out, and in its latest figures on sales totals, air conditioning represented a full half. Until now, however, it has specialized in the bigger industrial and commercial applications.

"Now Trane is ready to bull

its way into the residential business—a vast market that, so far, is relatively untapped," says the magazine article. "Only about 2% of the nation's homes have installed central systems, yet many people in and out of the industry still think that the day of universal central air conditioning is inevitable.

'Just Question of Time'

"It's just a question of time," the article quotes Minard as saying. "Americans want to be comfortable. They've gotten used to air conditioning in stores and offices, theaters, and restaurants. It won't be long, in many parts of the country, till a home built without central air conditioning will be obsolete when it's completed."

By choice, it is stated, Trane has been laggard in getting into the residential field. The com-

pany takes pride in its conservatism, and an official is quoted as saying that "we never rush into anything. We always have one foot anchored before we take the next step."

Trane's decision to enter the residential field may have been induced in part by its experience in packaged commercial units. Trane began to place emphasis on these packaged units two years ago, the article points out, broadening the line and adding 25 "specialists" to the field force to sell the product to dealers.

This move proved successful, and despite a decline generally in sales of these units, Trane says that in the last year it picked up a substantial amount of business and made a profit on the line.

Trane is not revealing any of the design details of the residential line which will be coming off the lines at the Tennessee plant some time this year,

but it is known that emphasis will be placed on a year-round forced-air type residential system. This means that Trane will be making a central residential heating system for the first time. Separate cooling systems will also be available.

Claim Operation Under High Heat

Business Week says that Trane engineers claim "their equipment will function effectively under extremely high heat conditions where some existing systems have fallen down."

On Trane's plans for merchandising its residential air conditioners, the *Business Week* article states:

"A manufacturer can sell by persuading the contractor to push his brand over others, by persuading the mass builder to specify a particular brand to his contractor, or by persuading the individual homeowner,

through national advertising, to specify it.

"Many companies have found that, on heating and cooling equipment, the homeowner tends to take the advice of his contractor. So Trane is planning national advertising but is saving its heaviest effort for dealers and builders.

"There are some 10,000 heating and air conditioning contractors of any size in the country—and almost half of these are concentrated in the northern one-third of the country, where demand for central air conditioning has been lightest. Of the rest, better than 3,000 are already tied to one of the top 10 companies in the air conditioning field. The rest handle from two to 20 different lines.

How Trane Will Seek To Cover the Market

"... Trane expects to have 500 contractor-dealers by mid-year when it starts production on its residential systems and 1,000 by 1961. By 1965, it hopes to have 3,000, covering most of the major communities. Builders are also familiar with Trane products, and Minard expects a carryover of brand acceptance there.

(A Trane Co. spokesman, commenting on this part of the story, stated: "It could be said that Trane has customers for its new equipment among the many contractors it is presently supplying, yet it expects most of its business in the residential line to come from new customers—the dealers it acquires. Trane feels it knows contractors and its major effort is at the dealer level—the heating and air conditioning contractors.

"Regarding the figures on the number of dealers, they are relative—our goal is to achieve proper dealer representation throughout the country."

"While waiting for its new product," said the story, "Trane is beefing up its 300-man field sales force. A packaged goods specialist will be added to each of the 97 U.S. sales offices, and 45 factory-trained service engineers will be available to help new dealers.

"To provide overnight deliveries, a chain of seven leased warehouses has been set up across the country, to augment the plant facilities at LaCrosse, Scranton, and Clarksville."

Open House In New Plant Marks BAC Anniversary

BALTIMORE — Baltimore Aircoil Co. recently held an open house at its new Jessup plant, marking the 20th anniversary of the founding of the company.

The event was attended by approximately 125 guests from as far away as Chicago and Detroit, who were given an informal tour of the plant and an opportunity to inspect production facilities and machinery.

The new plant building has approximately 70,000 sq. ft. of manufacturing area serviced by two 10-ton and one 15-ton overhead cranes.

Baltimore Aircoil manufactures evaporative condensers and cooling towers which are used in air conditioning and refrigeration systems. The company was founded by John Engaltcheff, Jr., in 1938.

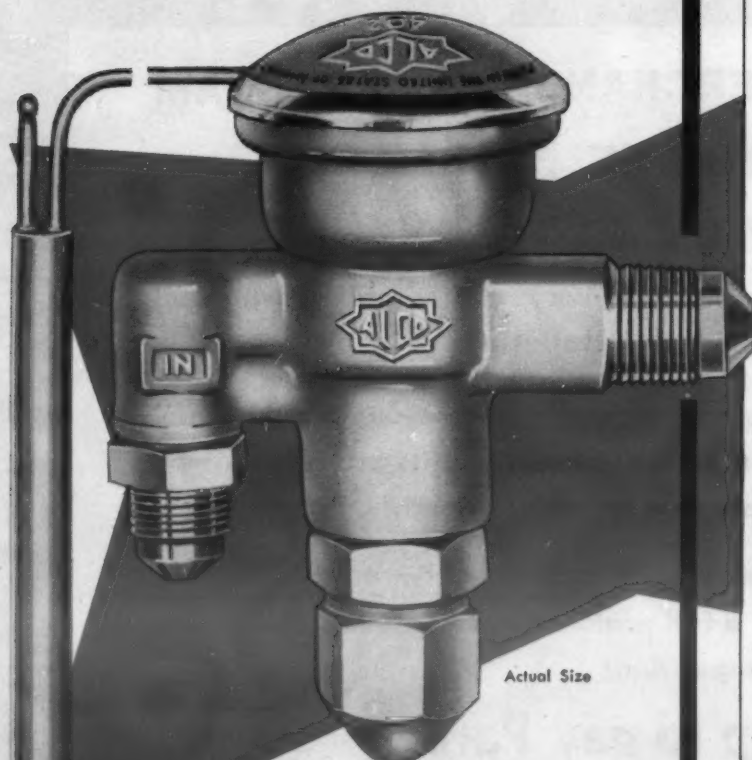
ALCO'S

famous

402

THERMO® VALVES

THE SMALL-FIXTURE VALVE FOR ALL FIXTURES



FIELD PROVEN MODELS FOR ALL THESE CAPACITIES:
FREON-12 • 1/4, 1/2 and 1 Ton
FREON-22 • 1/2, 3/4 and 1-1/2 Tons
METHYL CHLORIDE • 1/2, 1 and 2 Tons

IF THERE'S ROOM FOR YOUR HAND...
THERE'S ROOM FOR AN ALCO 402

These are your benefits:

- ✓ LIQUID CHARGED—Install in any position.
- ✓ BUILT-IN PRESSURE LIMITING ELEMENT—Prevents motor overload and motor burn-out.
- ✓ WIDE RANGE SUPERHEAT ADJUSTMENT—2 to 20° F—Easy External adjustment fits Standard Service Wrench.
- ✓ REVERSE SEATING—Assures smooth feed at all loads.
- ✓ RUGGED CONSTRUCTION—Brass, Bronze and Stainless Steel.
- ✓ REMOVABLE STRAINER—At inlet—Easy to clean.
- ✓ CAPILLARY AT SIDE—Allows more head room for mounting.

Call your Alco wholesaler — Write for Specifications Bulletin No. 402.



- BUY SECURITY
- BUY QUALITY
- BUY ALCO

ALCO VALVE CO.

853 KINGSLAND AVE. • ST. LOUIS 5, MO.

7804

The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors Solenoid Valves • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves

For more information about products advertised on this page use Information Center, page 22.



GUESS WE'VE BEEN HIDING OUR LIGHT UNDER A BUSHEL

Apparently the story of this highest capacity, smallest size compressor hasn't been heard by everyone in the industry.

This remarkable 24,000 BTU per hour compressor was developed over two years ago by the engineers at Bendix-Westinghouse and has had two full seasons of successful, dependable performance. Its compact shape and size take no more space than conventional 1 H.P. compressors.

While this major development has not been widely advertised, apparently the compressor speaks for itself. Seven of the leading air conditioning manufacturers have standardized on it for this coming season. These leaders prefer it because of its high capacity and excellent efficiency—24,000 BTU per hour and over 9 BTU per watt. It's the greatest *BTU per dollar* value to be found in the industry.

In the months ahead, you can expect more and more advanced developments like this from Bendix-Westinghouse. For we honestly believe we have an unusually capable group of engineering and manufacturing people.

In the meantime, if you are looking for ways to increase the capacity of your window or residential air conditioning systems, get the facts on our complete line of compressors.

Bendix-Westinghouse

EVANSVILLE, IND.

A Division of Bendix-Westinghouse Automotive Air Brakes Company, Elyria, Ohio—Export Sales: Bendix International, 205 E. 42nd St., New York 17, N. Y.

For more information about products advertised on this page use Information Center, page 22.

Air Conditioned Schools Cost Less

ASHAE Symposium Tells Why, But Also Points to Roadblocks Delaying Widespread Adoption In Country

By C. Dale Mericle

PITTSBURGH—Schools can be constructed at less cost with air conditioning than without it, and there's no doubt that better teaching and learning result even though these advantages may be hard to prove.

But major roadblocks delaying widespread adoption of air conditioning by schools are the question of operating costs and what to do about existing school buildings that lack air conditioning.

These were some of the important points brought out in a symposium on school heating, ventilating, and air conditioning held by the American Society of

Heating & Air-Conditioning Engineers during its 64th annual meeting here.

Even the question of increased operating costs can be answered by the savings in janitor service permitted by air conditioning, declared panelist G. B. Wadzeck, superintendent of schools in San Angelo, Texas. But it's not so easy to satisfy parents of children who have to attend older schools without air conditioning, he said.

Actually, the owning and operating costs of complete air conditioning amount to only 2.8% of the total school dollar (80% of which goes for sal-

aries) and would require a mere 4% increase in teaching efficiency to pay for it, pointed out another panelist, Z. A. Marsh, director of school activities for Minneapolis-Honeywell Regulator Co.

Most classrooms require cooling even during the winter, emphasized a third speaker, Henry Wright, technical consultant.

Other panelists were C. B. Hershey of the Pennsylvania Dept. of Public Instruction, who outlined some of the problems faced by state boards, and E. G. Good, Jr., architect, who discussed trends in school design.

It was the necessity of keep-

ing noise out of an elementary school building to be located near an air base that led to air conditioning in San Angelo three years ago, Wadzeck explained.

This building, which was designed around a central mechanical core and featured flexibility of interior arrangement through use of portable storage and equipment, actually cost less than four other elementary schools of conventional design without air conditioning built at the same time, Wadzeck declared.

Now an air conditioned high school for 2,000 students is nearing completion in San Angelo. Rather than a single large building, this design calls for several small units, which will cost about \$12 per sq. ft. with air conditioning compared with \$14 per sq. ft. for a conventional school building without air conditioning, Wadzeck said.

"Problem of air conditioning schools is not the first cost because we can save enough on the 'fuzz' to pay for it," he contends.

As for the roadblock of operating costs, Wadzeck explained, "we are assigning 25% to 50% more space for janitors in air conditioned schools, thus getting a saving in labor costs."

And parents in San Angelo have been assured that the board has a long-term plan for complete conversion of all schools to air conditioning, he revealed. In the meantime, summer school classes are concentrated in air conditioned schools, he said.

The oft-cited suggestion of operating air conditioned schools on a 12-month basis with staggered semesters to relieve the classroom shortage was heavily discounted by Wadzeck, who declared that the year-round program had been tried in 50 communities (presumably without air conditioning) and given up by all.

Rather, he predicted accelerated classes for bright students and remedial classes for those in need will be held in air conditioned schools in summer.

Cooling is needed in most classrooms even in winter, asserted Henry Wright, who cited studies made in Moline, Ill., and urged that this fact be remembered when considering air conditioning for summer.

There is considerable solar heat gain through the extensive window areas of schools, even in rooms facing north, and this, combined with the heat of occupancy, calls for cooling during much of the school day, it was shown in the Moline research, Wright declared.

"Most of the school heating load is warming up the building in the morning before pupils gather in the classrooms," Wright said.

The usual winter heating design conditions seldom apply to schools, he also emphasized, due chiefly to the hours a school is in use and the type of occupancy.

Winter cooling required for classrooms can best be obtained through controlled ventilation with outside air, and even if refrigeration is employed for air conditioning in warm weather, outside air can be circulated through the building at night to reduce the daytime cooling load, Wright explained.

He also believes a solar heat pump "may be especially applicable for schools."

A similar view was expressed by Good, the architect, who expects that air conditioning will probably be essential in the school of the future because there should be "full control of the environment."

Devoting most of his talk to reviewing school financial problems in Pennsylvania while sparring with a shifty public address system, Hershey explained that the heating and ventilating standards adopted in 1955 for the state aid school construction program do not consider cooling and dehumidifying "feasible except in unusual cases."

"We aren't negative on air conditioning," Hershey declared. "If the money's there [in local funds] we're much in favor of it."

BLUEPRINT for LEADERSHIP in commercial and industrial air conditioning

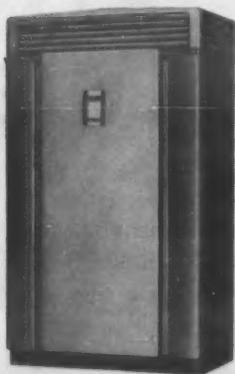
BLUEPRINT for more air conditioning sales for big projects with new 30-ton factory-assembled central station systems.

General Electric dealers are equipped to go after the big projects in a big way. Installation after installation has proved convincingly that large projects can be air conditioned more efficiently at less cost with General Electric *Factory-Assembled Central Station Systems*—now available in water-cooled self-contained units of 20, 25 and 30 ton capacities.

BLUEPRINT for knocking out competition fast with new air-cooled systems up to 20 tons.

Handsome new General Electric *Factory-Matched Air-Cooled Split Systems* enable G-E Dealers to capture the big projects where air-cooled equipment is the best answer. No need for "patch-work" installations when large capacity air-cooled systems are required.

BLUEPRINT FOR ALL TYPES OF ZONE-BY-ZONE INSTALLATIONS—THESE FAMOUS GENERAL ELECTRIC UNITS



Self-contained water-cooled floor-mounted units (may be stationed in or away from area served) in capacities ranging from 3 to 15 tons.



Self-contained ceiling-mounted units (take no floor space)—water-cooled in capacities of 3 to 7½ tons—air-cooled in capacities of 3 and 5 tons.



Air-cooled, ceiling-mounted split systems in capacities of 3 to 10 tons.

For full information on General Electric's Blueprint for Leadership in commercial and industrial air conditioning MAIL COUPON.

Progress Is Our Most Important Product

GENERAL ELECTRIC

General Electric Company
Commercial and Industrial Air Conditioning Dept.,
5 Lawrence Street, Bloomfield, N. J.

AC-3

I am interested in signing up with General Electric so that I can benefit from G.E.'s Blueprint for Leadership Plan.

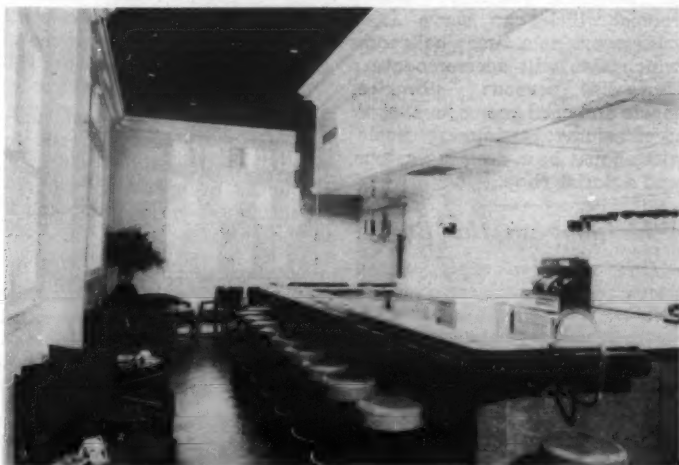
NAME

FIRM

ADDRESS

CITY ZONE STATE

Unused Areas Provide Space for Units To Solve Hotel's Conditioning Problem



PARK LANE hotel's bar in Toledo had no room for a self-contained air conditioner. So Carrier dealer James S. Hausman suspended air handling equipment over the bar and remotely located the condensing unit in a second-floor closet.

TOLEDO—One of the most unusual air conditioning systems installed here has been providing cooling in one of the city's most unusual hotels.

The Park Lane is one of the few colonial-style hotels in North America. It has only a minimum basement, its second floor is devoted to transient rooms, and it has low corridor ceilings. There was no conventional way in which to install air conditioning equipment or ducts without monopolizing valuable, and scarce, floor space.

To solve this problem, The Hausman Steel Co., Carrier Corp. dealer in Toledo, utilized self-contained equipment concealed in unused areas of the building, and room air conditioning units.

The factory-assembled "Weathermakers" are ingeniously hidden in out-of-the-way places. For example, the lobby is cooled with a self-contained unit behind the elevator shaft. The coffee shop air conditioner is housed in an unused stairwell. A shower stall is home for the one that handles the "Georgian" room.

Air conditioning equipment for the dining room is in the kitchen work area. The cocktail lounge unit is recessed in the wall. And in the bar, the air handling apparatus is suspended from the ceiling in a decorative enclosure, while the compressor is tucked away in a closet on the second floor.

Transient quarters are kept comfortable with about 100 room air conditioners installed in windows.

James S. Hausman, whose company made the installation, reports, "We were a little worried about disturbing the colonial motif of the Park Lane. But even in the cocktail lounge, which looks like an overgrown living room, we installed our equipment without altering its appearance at all."

SEND FOR REPRINTS

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.

Only 40¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

20% of Lighting Energy Absorbed by Panels

PITTSBURGH — More than 20% of the energy supplied to fluorescent lights can be removed from an air conditioned room by a ceiling panel cooled to 70° F., the American Society of Heating & Air-Conditioning Engineers was told at its 64th annual meeting here.

Studies made at the ASHAE laboratory were described by L. F. Schutrum and T. C. Min in a technical paper.

The six inside surfaces of the test room were composed of aluminum panels through which liquid at controlled temperature could be circulated, and conditioned air was introduced through two 8-in. ceiling diffusers.

For the tests the air was supplied at temperatures from 60° to 75° F. and in quantities up

to 21 air changes per hour with relative humidity held between 40% and 60%.

Some of the test results indicate that as the volume of conditioned air increases, heat removal by the air goes up and heat removal by the panel decreases. Increased panel pickup of heat occurs when the supply air temperature is raised, but when temperature of the panel is raised, its heat pickup falls off rapidly.

In one test made with eight persons in the room, it was determined that the cooled ceiling panel picked up about 25% of the sensible heat output of the occupants, which averaged 229 B.t.u.h. per person.

It was also found that approximately 16% of the energy input to direct fluorescent fixtures was radiated to the cooled panel and 24% to the walls and floor. With indirect lighting these figures were 18% and 12%, respectively.

Recold Ups Halls To Head Refrigeration Products

LOS ANGELES—As a part of Recold Corp.'s expansion program, Harold A. Halls has been promoted to manager of refrigeration products, announces H. T. (Hy) Jarvis, president of Recold.



H. A. Halls

Halls, associated with Recold since 1953, will continue his present duties as national refrigeration service manager but in his new capacity, he will take on added responsibility in management decisions.

A veteran of 32 years in the refrigeration and air conditioning industry, Halls worked with Servel, Inc. and Refrigeration Service, Inc. earlier.

Jenni Genetron says,

"HERE'S THE RIGHT REFRIGERANT FOR EVERY NEED!"

genetron® SUPER-DRY REFRIGERANTS



Selected Physical Data
(Performance based on 5°F evaporator temperature and 86°F condenser temperature)

	Trichloromonofluoromethane	Dichlorodifluoromethane	Monochlorodifluoromethane	Trichlorotrifluoroethane	Dichlorotetrafluoroethane
	genetron 11	genetron 12	genetron 22	genetron 113	genetron 114A
	ORANGE LABEL	WHITE LABEL	GREEN LABEL	PURPLE LABEL	DARK BLUE LABEL
Chemical Formula	CCl ₃ F	CCl ₂ F ₂	CHClF ₂	C ₂ Cl ₃ F ₃	C ₂ Cl ₂ F ₄
Molecular Weight	137.4	120.9	86.5	187.4	170.9
Boiling Pt. (°F) at 1 Atm. Pressure	74.7	-21.6	-41.4	117.6	37.6
Evaporator Pressure at 5°F (p.s.i.g.)	24.0*	11.8	28.3	27.9*	15.6*
Condensing Pressure at 86°F (p.s.i.g.)	3.6	93.3	159.8	13.9*	22.7
Freezing Point (°F) at 1 Atm. Pressure	-168	-252	-256	-31	-76
Critical Temperature (°F)	388	234	205	417	294
Critical Pressure (p.s.i. absolute)	635	597	716	495	478
Compressor Discharge Temperature (°F)	112	101	131	86	88
Compression Ratio (86°F/5°F)	6.24	4.08	4.06	8.02	5.33
Specific Volume of Saturated Vapor at 5°F (cu. ft./lb.)	12.27	1.46	1.25	27.04	4.04
Latent Heat of Vaporization at 5°F (B.t.u./lb.)	84.0	68.2	93.6	70.6	60.2
Net Refrig. Effect of Liquid—86°F/5°F (B.t.u./lb.)	67.5	50.0	69.3	53.7	43.0
Specific Heat of Liquid at 86°F (B.t.u./lb.°F)	0.21	0.24	0.34	0.22	0.23
Specific Heat of Vapor at Constant Pressure of 1 Atm. & 86°F (B.t.u./lb.°F)	0.13	0.15	0.15	0.15	0.16
Specific Heat Ratio at 86°F & 1 Atm. (k=Cp/Cv)	1.14	1.14	1.18	1.09	1.01
Coefficient of Performance	5.09	4.70	4.66	4.92	4.60
Horsepower/Ton Refrigeration	0.927	1.002	1.011	0.960	1.025
Refrigerant Circulated/Ton Refrig. (lbs./min.)	2.96	4.00	2.89	3.73	4.65
Liquid Circulated/Ton Refrig. (cu. in./min.)	56.0	85.6	68.0	66.5	88.7
Compressor Displacement/Ton Refrig. (c.f.m.)	36.32	5.83	3.60	100.76	18.78
Toxicity (Underwriters' Laboratories Group No.)	5A	6	5A	4-5	6
Flammability & Explosivity	None	None	None	None	None

COMPARE! Careful control at every step in the manufacture of "Genetron" Super-Dry Refrigerants results in products of highest purity, which are extremely low in moisture content and other undesirable impurities. Quality of current production consistently surpasses the rigid manufacturing specifications for these products. Write for important informative folder "Genetron Super-Dry Refrigerants."

SEE YOUR WHOLESALER
or write or call
genetron DEPARTMENT
GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.



For more information about products advertised on this page use Information Center, page 22.

Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)
the "electronic brain," and the gyroscope, and still lead the world in progress of their refinement. Equivalently:

Our scientists pioneered, and still lead the world, in development of fission, fusion, electronics, refrigeration, and component miniaturization. (The latter two, incidentally, are highly important to missile functioning.)

Our manned airplanes and controlled rockets hold all records for height attained, speed, and controllability. As to fission-power, Russia hasn't launched an "atomic" submarine yet. We have two operating, and a mass-production line going.

Why, then, all the outcry that the Commies are mastering us

scientifically? Answer: *money*. Sputnik was a springboard for eager beavers. Everybody from military and corporate missile makers to under-paid college professors jumped on that springboard happily, crying doom while doing so.

Perhaps it is good that they did.

In the long run, all of us will benefit from accelerated scientific progress.

Huge Air Conditioning Installation

Our longtime good friend, Sy Brown, is the recipient of a choice plum. He has been commissioned to air condition the French Line's new 55,000-ton luxury ship *France*.

Mr. Brown, who heads the engineering-consulting firm bearing his name, is one of the world's leading authorities on marine air conditioning. During

the past 15 years he has been associated with the engineering and design of air conditioning and refrigeration systems on several thousand ships.

These include most of the passenger liners recently constructed or now building in the United States.

The new vessel, which will be built at a cost of \$78,000,000 in the shipyard at St. Nazaire, France, will have the most extensive air conditioning system ever installed on shipboard.

The *France* will be as long as the Eiffel Tower is tall, almost to the inch! (The Eiffel Tower is the third highest structure in the world, and is surpassed only by the Empire State and Chrysler buildings.) She will have all, and more, of the facilities and services available in any of the finest and most modern hotels anywhere in the world.

All of the rooms for the 2,000 passengers will be completely

air conditioned, as will the crew's quarters.

Among the public rooms to be air conditioned will be the largest movie theater ever constructed in maritime history; dining rooms which can serve 1,000 passengers at a time; ballrooms which also will accommodate a thousand persons; libraries; music and card rooms; a chapel; gymnasiums; swimming pools; gift shops; hair dressing salons, and a florist shop.

Whirlpool on the Beam

Our campaign urging manufacturers and dealers to emphasize the "benefit" angle instead of price in merchandising air conditioners prompted Dick Sierk of Whirlpool Corp. to advise us of what his company is doing along this line.

Whirlpool has added to its promotional program a package consisting of banners for use in stores, and booklets to hand out

to prospects. Sierk sent along a copy of the booklet "so you can see the approach we are making." He added:

"I think you will agree it is quite 'uncommercial,' sticking pretty much to the over-all benefits that accrue to owners of an air conditioner, be it RCA Whirlpool or some other brand."

The booklet tells in considerable detail "What it means to you to live in 'conditioned' air." Numerous drawings add emphasis to the five major points made in the pamphlet:

"1. Life is healthier, happier for husbands, wives, children . . . everyone.

"2. You can be free of muggy, oppressive humidity . . . mildew and mold . . . sticky doors.

"3. Air is cleaner—allergy sufferers benefit especially . . . there's less housework.

"4. Smoke, stale air, and stuffiness just disappear . . . any time of the year.

"5. Air conditioned living is like nothing you've experienced before, and you can enjoy it now."

Drawing the reader into the details are these subheadings:

"It's a proven fact that in COOL, CONDITIONED AIR . . . families eat better, sleep better, relax better, and have more pep!"

"What wonderful relief . . . 'no muggy humidity!' Everyone knows that summer humidity can cause as much discomfort as does heat. But, did you also know that excessive moisture in the air can cost you money!"

"Conditioned air is constantly filtered to remove dust, dirt, soot, and pollen particles."

"In summer . . . in winter—any time of the year—a room air conditioner benefits health and comfort!"

"With just one window unit, it is possible to transform one room . . . even up to four rooms . . . into a haven of cooler, cleaner, healthier conditioned air."

Calling attention to new developments (such as through-the-wall units, plug-in models, and portable units) the booklet also stresses that "nowadays any home—regardless of size or floor plan—can have an air conditioner installed easily and quickly."

The last page of the booklet lists features of RCA Whirlpool units.

His company hopes, Sierk noted, "that this approach will receive the acceptance it should have and also that this booklet will convince you, and others who have made pleas for the use of more benefit material, that Whirlpool Corp. is taking a solid step in the right direction."

Check!

Out of Our Mailbag

Worthington Corp.
Philadelphia, Pa.

Editor:

Here's one for "Dope." New secretary in our office took an order for a Freon reciprocating compressor. The order read: "one 50 hp. free uncompressor."

NORMAN M. SCHWARTZ,
District Representative



unless you use

Revolutionary
New Fiberglass

KOCH JET
COOLING TOWERS



WRITE—RIGHT NOW! FOR complete information, "spec" sheets, catalog sheets, etc.

DISTRIBUTORS! ATTENTION! A few choice exclusive distributorships are still open in certain major market areas. Contact Koch at once for this JET AGE opportunity!

KOCH
ENGINEERING CO., INC.

Koch Building
321 W. Douglas Ave.
Wichita, Kansas

Koch's Forced Draft action is as new as tomorrow! High-velocity, non-clog nozzles at the top of the tower break down water droplets into atomized particles which, in their downward thrust, create a continuous one-way piston action in displacing the air. This draws in huge quantities of air at the top . . . giving the Koch Jet-Action Tower a very high evaporative action. This high evaporative process speeds up BTU rejection and makes unnecessary wood slats and baffles used in most conventional "old-fashioned" towers.

NO RUST! NO CORROSION! NO ROTTING! NO COLLECTION OF CHEMICALS! New non-corrosive Fiber Glass construction eliminates all the old cooling tower bugaboos!

NO MOVING PARTS! No motors, belts, pulleys, bearings, etc. to worry about—EVER!

SO LIGHTWEIGHT that ONE MAN can lift a 7½-ton capacity tower . . . even install it himself. Dry weight of tower is only 67½ pounds.

EYE-APPEALING SATIN SMOOTH FINISH STAYS CLEANER MUCH LONGER!

KOCH
JET forced draft
COOLING TOWER

"CONTINUING PROGRESS THROUGH ENGINEERING RESEARCH"

For more information about products advertised on this page use Information Center, page 22.

RP

EZ KLEEN TRIM TO SIZE

washable air filter

- EASILY CUT TO FIT MOST ROOM AIR CONDITIONERS (15 x 24" SIZE)
- SOLVES INVENTORY PROBLEM OF SPECIAL SIZE FILTERS
- RIGID ALUMINUM CONSTRUCTION
- IT'S WASHABLE! — A FEATURE WITH REAL SALES APPEAL

Plus ODOR REMOVAL



Here's a sales feature you can offer only with R P Super Handi-Koter. This one pint container of Super Filter-Coat, the dust, pollen and odor-removing adhesive, is complete with sprayer and is a fast-selling repeat item that promotes call-back traffic and increases your filter profit margin.





washable air filter for room coolers

ELIMINATES STOCKING OF MANY SPECIAL SIZES

One size—the 15" x 24" Trim-To-Size E Z Kleen, virtually eliminates the many annoying details in connection with maintaining a large inventory of many unusual sizes—takes care of practically all your special size filter requests. With the 1/2" standard E Z Kleen filter for popular sizes—and the Trim-To-Size E Z Kleen for special sizes, you can easily fulfill every possible size requirement of your customers.

RIGID ALUMINUM CONSTRUCTION

Your customers will appreciate the aluminum construction of the Trim-To-Size E Z Kleen. It's rigid, holds its shape—doesn't shed particles. It's safe, clean and easy to handle. The gleaming aluminum of the filter, in a clear Polyethylene envelope, printed in 3 colors, makes an unusually attractive package. And the aluminum media is highly efficient—its design is adapted from the standard E Z Kleen—used as original equipment in many top quality units.

EASILY CUT TO SIZE

The aluminum media in the Trim-To-Size E Z Kleen is exceptionally easy to cut with an ordinary scissors or kitchen knife. This feature is especially desirable when necessary to cut holes in the filter for control knobs or shafts.

EASY TO WASH

Rust-proof, non-corrosive aluminum can be easily cleaned with a stream of water. The water soluble adhesive in the Super Handi-Koter, together with the collected dirt, flushes off the filter in seconds.

ODOR REMOVAL, TOO

With the adhesive in R P Super Handi-Koter, you have an extra sales point. This exclusive adhesive has highest efficiency dust and pollen catching properties—and also traps annoying odors from cooking, smoking and other sources. It's true odor absorption—not simply masking by other aromas.



PRICE AND PACKAGING INFORMATION

ITEM	STOCK No.	PRICE (F.O.B. MADISON)	STANDARD PACKAGE	CARTON SIZE	SHIPPING WEIGHT
TRIM-TO-SIZE FILTER	9200	1.75	24	16"x6 1/2"x25"	12 lbs.
SUPER HANDI-KOTER	411	1.25	12	12 1/2"x9 3/4"x7"	16 lbs.

Above items may be combined with standard E Z Kleen Filters for quantity discount. Prices subject to change without notice.

SAVE: TEAR OUT AND SAVE THIS SPECIFICATION SHEET IN YOUR FILES OR CATALOG

Why Sell Through Distributor?

Tells Commercial Refrigeration Mfrs. 'You Dominate Local Level Market, Get Local Service, Engineering'

CHICAGO—Why should the commercial refrigerator manufacturer sell through a local distributor?

Dudley Cawthon, who runs a successful distributor operation in Miami, Fla., put his cap on backwards and told fellow distributors attending the National Commercial Refrigerator Sales Association convention here why he would sell through distributors if he were a manufacturer.

"I would sell through distributors because, first and foremost, I want to dominate the market at the local level," he declared. He went on to explain how the distributor would do that for him.

'Gives Personal, Day-to-Day Contact'

Cawthon speaks:

"The distributor affords me that personal, day by day contact with the customer that I can not get from the factory level. Through closer, personalized contact with our customers, the distributor is aware and knows the needs of the customer even to the one small piece of equipment that may need replacing.

"He is in on the ground floor when the first thoughts of enlarging and expanding appear in the customer's mind. In fact, he can often be the instigator of just such an idea.

"He is available at a moment's notice to the small store on the corner or to the executive of the largest chain. A field sales representative from the factory would have to cover several states and therefore see our customers only a few times a year. That isn't enough to keep good contact with the trade and know what is going on.

"Selling through the distributor gives me a service department at the local level, so that our customers can get prompt and better service. It is a well known fact that a good, 'on the ball' service department can be a prime factor in getting new business.

'No Need for Big Field Service Group'

"Without a local distributor service organization, it would be necessary to develop an extensive field service organization if I expect to stand behind my product. The field service mechanic will have to travel to three, four, five, or ten states. Since we all know that the 'squeaking wheel gets the grease,' the field service mechanic may be at one end of the territory on Monday, by Wednesday he must be a thousand miles at the other end of the territory, and on Friday several hundred miles more in another direction.

"It becomes virtually a physical impossibility to keep our customers satisfied and happy with our equipment. A good percentage of these customer complaints or service problems are very minor but because we cannot spread our service organization thin enough to take

care of them promptly, they can be the cause of customers leaving us to try some other manufacturer's products.

"A survey clearly shows us that customers around the United States, whether they be the small buyer or the large buyer, change from one manufacturer to another due to these problems. We then have the added expense of trying to win back the customer's confidence.

'Eliminate Petty Service Problems'

"By selling through distributors, I can eliminate these costly, petty service problems which in many instances a distributor, being on the spot, can handle by

merely a phone call or a drop-in visit.

"Selling through a distributor gives me an engineering department at the local level; someone who can begin to put a customer's dream on paper while he is dreaming it.

"Here again, a local engineer can give that personalized touch during the installation of a job. Many problems have been solved in the field by engineers who are familiar with the peculiarities of certain localities. I am getting the services and ideas of qualified engineers with no additional cost to me.

"To be completely objective, what are the advantages of selling direct from the factory.

The thought coming to mind immediately is lower price to the ultimate consumer.

"However, if I sell direct, other manufacturers will also sell direct and competition on the price level is the same.

"The cost of developing a field sales, service, and engineering organization to cover the 48 states and the lost travel time must be added to the initial cost; so that actually the profit differential is less.

'Devote Time To Making Better Units'

"By eliminating time consuming small problems and details of both the small operator and the chain store operator, my energies as a manufacturer can be devoted to building the finest equipment on the market, with the most advanced design and at the lowest cost.

"With these facts established I would completely modernize my distribution policy, by en-

trusting to our distributors the full responsibility for handling our products, give him the support he is entitled to, assist and back him all the way.

"I would develop such a strong policy that it would attract top flight men to our distributor organization. I would not be afraid to see them make money for the more successful our distributors are, the more eagerly will strong, active men want to join our organization.

"A good distributor organization will keep me from getting in a rut and following the same pattern as 'Mr. Joe Blow.' Each distributor is an individual and a personality. He has ideas, he knows what he wants and what he needs.

"He keeps me on my toes, in trying to stay one step ahead of him. By staying one step ahead of all my distributors, what is there to prevent me from being one step ahead of my competitors?"

US RUBBER Us-Kon HEATING BLANKETS

Us-Kon solves problems of slugging, defrosting, draining and condensation



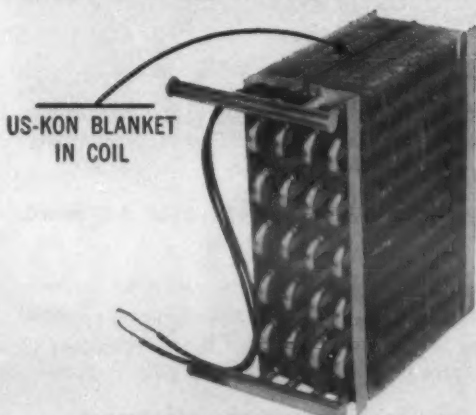
US-KON BLANKET HEATING COMPRESSOR

OUTDOOR AIR-CONDITIONING AND REFRIGERATION COMPRESSORS

Us-Kon® Blankets prevent the mixing of oil and Freon and therefore the resultant foaming. The Blanket keeps the oil warm to prevent the passage of Freon vapor into the oil, and to permit its rapid escape when the compressor is started. The Us-Kon Blanket is quickly and easily applied to the outside of the compressor—no need to break into the hermetic seal and risk causing leaks.



US-KON BLANKET ON BOTTOM OF COMPRESSOR



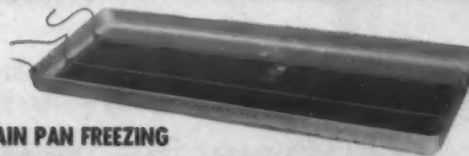
US-KON BLANKET IN COIL

DEFROSTING OF COILS

An Us-Kon Blanket is the one right way for removing ice from the fin coils. That's because it has a uniform heat source—and gives more inches of physical contact with the fins than any other type of heat source. It's quick, all-over heat.

MOISTURE EVAPORATION

Us-Kon Blankets prevent "sweating" in refrigeration equipment and the resultant freezing of the moisture. Us-Kon works effectively on the walls of frozen food cabinets, ice cream cabinets, cold storage rooms, and around the doors and lids of all types of refrigeration equipment.



DRAIN PAN FREEZING

An Us-Kon Heating Blanket in the bottom of the cooler drain pan gives just the right amount of quick warm-up which prevents the water (after the defrosting) from freezing again. No time or effort needed to chop out ice chunks.

Tell us the type of your product or application. Use convenient coupon.



Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U. S. Rubber's new Exhibit Hall, Rockefeller Center, N. Y.

For more information about products advertised on this page use Information Center, page 22.

US-KON DEPT.
United States Rubber, Mechanical Goods Division, Rockefeller Center, New York 20, N. Y.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Power Conference March 26-28

Heating, Ventilating, Air Conditioning Session Set by ASME at Chicago Confab

CHICAGO—Heating, ventilating, and air conditioning session sponsored by the Heating and Air Conditioning Div., Chicago Section, American Society of Mechanical Engineers, will be a feature of the 20th American Power Conference here March 26-28.

Sponsored by Illinois Institute of Technology in cooperation with 14 other colleges and universities and nine professional societies, the conference in the Sherman hotel will cover nine other subjects also.

"Ventilation of Research Nuclear Reactors," "The Multi-stage Heat Pump and Its Applications," "Central Station Ven-

tilation," and "Off Peak Electric Panel Heating Using the Heat Storage Principle," are topics to be covered in the heating, ventilation, and air conditioning session from 2 to 5 the afternoon of March 26, the group explained.

Speakers at this session will include John Dolio, partner, Shaw, Metz & Dolio, architect and engineer, Chicago; Robert G. Werden, general sales manager, Engineered Machinery Div., York Corp.; Robert W. Patterson, mechanical engineer, Sargent & Lundy, engineer, Chicago; and Robert C. Geyer, Commonwealth Edison Co., Chicago.

Filter Method, Apparatus

Patent Infringement Charged In AAF Suit

LOUISVILLE, Ky. — American Air Filter Co., Inc. has filed suit in U.S. District Court for patent infringement against Continental Air Filters, Inc.

The suit is based on an invention for a method and apparatus for filtering air. The patent covers filters sold by AAF under the trade-marks "Roll-O-Matic" and "Roll-O-Vent," which employ a roll of compressible and expandable filtering material.

The suit asks for injunctive restraint against the manufacture and sale of infringing equipment which is being sold by Continental Air Filters, as well as for monetary damages for past sales.



REMOTE CONTROL unit for his Trion electronic air cleaner is located in Paul M. Howard's office in Heart of Ohio motel near Hebron, Ohio. Sign outside tells public about air cleaner.

Motel Uses Electronic Air Cleaner To Purify Room Air of Smoke, Dust

HEBRON, Ohio—As an added means to prevent annoyance to travelers who stop over in their Heart of Ohio motel here, Mr. and Mrs. Paul M. Howard have installed an electronic air cleaner made by Trion, Inc. to purify

smoke from air in rooms.

"Many guests have commented very favorably on the motel's pure air," Howard said. "We've had folks tell us they enjoyed their best night's sleep in months."

Since we have dust-free air, my dust allergy doesn't bother me anymore, added Mrs. Howard. She pointed out that "the chore of daily dusting of the rooms has been eliminated since the air is now dust-free and we haven't had to paint the walls for a long time."

Electronically clean air is a "mighty important factor" in helping bring repeat business, opined Howard. "I think it's a 'must' for a modern motel."

ARI Revises Standard On Year-Round Systems

WASHINGTON, D. C.—Air-Conditioning and Refrigeration Institute announced that its Standard ARI 610-56, "Year-Round Residential Air-Conditioning," has been re-designated ARI 230-57, in order properly to include it in the 200 series of the Self-Contained and Residential Air-Conditioner Section of ARI.

Since supplies of the old version have been exhausted and a new printing has been ordered, another minor change has been made in the publication—deletion of "Item 9, Blower Motor" from the Cooling Load Estimate Form included in the standard.

This deletion was made to make the new 230-57 consistent with another Standard of the same series—210-57 (Unitary Air-Conditioning Equipment)—which specifies that "Standard Ratings shall be net values, including circulating fan heat in the total heat balance."

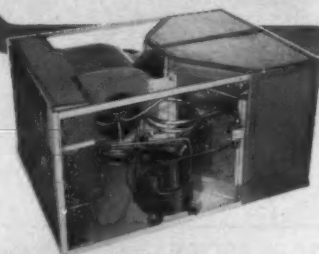
Standard 230-57 (the revised 610-56) is available from ARI at 50 cents per copy.

Toledo ASRE To Hear Talk On Dehumidification Mar. 3

TOLEDO — "Methods of Dehumidification: Absorption, Adsorption, and Cold Coil Surfaces" will be described by Gilbert A. Kelley, chief engineer, cooling and drying division, Surface Combustion Corp., at a meeting of the Toledo chapter of American Society of Heating & Air-Conditioning Engineers on March 3.

Robert Greenwald, chapter president, said the meeting will be held at 8 p.m. in the Secor hotel, following a 7 p.m. dinner in the Seaway Room. Anyone interested is invited to attend.

Coolerator® FLEXIBILITY means SALE-ABILITY



1958 Self-Contained Central Air Conditioners—2, 3 and 4 ton models plus 3 ton heat pumps.



1958 Remote Air Conditioner Condenser Sections—3, 4 and 5 ton models plus 3 ton heat pumps.



1958 Blower-Coil Units and Coil Sections—3, 4 and 5 ton models (Blower-coil with decorative-front accessory).

New Adaptable Air Conditioning Line Makes PROFIT for DEALERS

In central systems alone there's a unit for virtually every application. Units are easy to install, easy to service. Product quality plus Maximum Performance Testing (M.P.T.) result in customer satisfaction. These are the things which sell, which keep customers sold, on our equipment — and on your organization!

MORE FEATURES TO HELP YOU SELL

EXCLUSIVE NEW LECTROFILTER® GENERATOR — Standard equipment on all models. A unique development used to electrostatically charge the filter which collects pollen and dust.

EXCLUSIVE PERMALIFE® — Outstanding enamel finish UL tested. Proved to withstand 2600-hour hot, salt spray test.

EXCLUSIVE MAXIMUM PERFORMANCE TEST (M.P.T.) protects dealer's profits on air conditioners. EVERY air conditioner is operated under tropical conditions before shipment. This is your assurance of satisfying performance — free of troublesome service calls.

FOR PROTECTED PROFIT — PROMOTE AND SELL COOLERATOR!
WRITE FOR COMPLETE, DETAILED INFORMATION TODAY!



ROOM AIR CONDITIONERS • SELF-CONTAINED SYSTEMS • REMOTE SYSTEMS • DEHUMIDIFIERS • HUMIDIFIERS • SPACE HEATERS



Finest in Home Comfort Appliances

LONERGAN COOLERATOR DIVISION
McGraw-Edison Company ALBION, MICHIGAN

LONERGAN COOLERATOR DIVISION

Department CAC82-AC, Albion, Michigan
Tell me more about the Coolerator line and prices.

Name _____
Company _____
Street _____
City _____ Zone _____ State _____

Wholesaler Warns

Overbuying, Stocking Too Many Gadgets Brings Obsolete Inventory Problems

FORT MONROE, Va. — By recognizing the causes of his obsolete inventory problem, the wholesaler can find the road to his own salvation, Paul Bodwell of the Bodwell Co., Inc., Harrisburg, Pa. contends.

One of the principal causes of obsolete merchandise cluttering up wholesalers' shelves is that Mr. Wholesaler does not keep up with the times, Bodwell asserted.

'Keep Abreast of Trends'

The wholesaler has to know what the trends are in his industry and keep abreast of them so that he will have the merchandise his customers want.

A second cause is overbuying, he said. We buy extra items—more than we need, just to qualify for a quantity discount. If we would check, he asserted, we might find that we are buying a two-year's supply of some items. They take up storage space and keep other fast moving products off the shelves. We have a tendency to overload on staples, he admitted.

A third cause is that we tend to buy too many gadgets. We will buy an item just because it is new without considering whether or not our customers really need it. We may sell one or two, but we find ourselves with many more gathering dust on our shelves.

'Mfrs. Share Blame'

Up to now, Bodwell pointed out, we have been blaming only ourselves for the obsolete inventory problem. But, he said, "I think the manufacturers should share some of the blame, too."

Why? Because they change designs without adequate warning, he said. They should give the wholesaler several months' notice to work off old part numbers before announcing new designs, he believes.

By keeping these factors in mind when making purchase decisions, the wholesaler can save himself from unnecessarily accumulating products that grow obsolete on his shelves.

But now to get rid of present inventories of obsolete parts is something else again.

'Should Allow Item Returns'

Bodwell suggested that the manufacturers might be induced to allow returns on obsolete items and maintain a centralized source of supply for those who may require them.

Another idea was for each wholesaler to circularize a list of his obsolete items to other wholesalers, marking them down below cost so that the purchaser can make a profit on their sale.

Or, it might be arranged, that

Trying to find
the right man for a
hard-to-fill vacancy—
the NEWS' Classified
Ads are read by your
man.

Place your ad today!

To Emphasize Application Engineering

Deke Jones Buys J. Geo. Fischer Wholesale Operation in Detroit

DETROIT — Deke Jones Co. has been established with headquarters at 10140 Schoolcraft here, as successor to the Detroit Div. of J. Geo. Fischer & Sons, Inc., wholesaler of refrigeration equipment, parts, and supplies which has its main offices in Saginaw, Mich.

The new equipment and supplies wholesaling operation was formed by E. S. "Deke" Jones, who was manager of Fischer's Detroit division for 11 years. Jones purchased the entire stock and fixtures of the Detroit Fischer operation, and has set up the new wholesaling establishment with much the same lines and same personnel of the former Fischer setup.

However, he says that he will place more emphasis on doing application engineering work for contractors who are his customers, as he believes this is becoming an all-important part of the wholesaler's functions. Jones was a field engineer and branch office manager for Carrier Corp. for 16 years, and he employs another full-time engineer in his organization.

"The wholesaler should be ready to advise his customers on the proper application of the equipment which he sells to these customers, and must provide the manpower and man-hours to do this job," says Jones.

"But more than that, the

wholesaler has to be ready to put together in a package all of the major pieces of equipment that may be going into a big job. And he must know that he is putting together the right equipment.

"For example, one of our customers recently got all the air conditioning as a sub-contractor on a big new construction project. As happens in about 90% of the cases, it was left up to him to specify all of the air conditioning equipment.

"Working with him, we put together the equipment for the job using products made by Worthington, Kramer-Trenton, Acme Industries, UsAirco, and Jackson & Church (gas-fired heating equipment). I believe that today, only the independent supplies wholesaler can furnish the complete assembly of equipment that the air conditioning contractor may need for any one job."

the meaning of custom-made quality



Steel case die
with sintered
carbide nib



Plug or mandril
with sintered
carbide tip

Here's why United tube is always well within commercial tolerances

You want seamless tube exactly in the size you specify... every order, every piece. At United, these "specs" are assured with the finest carbide dies in the industry. Diamond bored to exact size in United's modern in-plant tool room; constant accuracy is guaranteed by the long life of the sintered carbide nib and plug. In addition each set is carefully checked and refinished after every job lot.

Standard size dies are always in stock and special sizes are readily available by quickly making a die to specifications. This is but one example of United custom-made quality. For further information or for fast shipment of your order write:

UNITED WIRE AND SUPPLY CORPORATION
1497 Elmwood Avenue, Providence 7, Rhode Island.



Specify

UNITED

for aluminum, brass, copper tube and wire... brazing alloys

For more information about products advertised on this page use Information Center, page 22.

Explains Causes of Draft Sensation

Outlines What Service Engineers Can Do To Balance System, Reasons for Poor or Uneven Air Supply, Instrument Use

CHICAGO—"The sensation of drafts can be caused not only by uncomfortable or excessive air motion, but by localized cooling, by unequal humidity, or by localized radiation of heat from a portion of the body to some nearby cold area. The difficulty is not always with the air distribution system."

The importance of physiological considerations was pointed out in his talk on "Air Distribution Problems" by F. Honerkamp, chief of engineering and design development, Anemostat Corp. of America, when he addressed the annual meeting of the Refrigeration Service Engineers Society here recently.

"The first task of the service

engineer when arriving at an air conditioning installation is to balance the system," Honerkamp stated.

Get Complete Information

"Before the engineer leaves his office he should have proper information on the installation. This information should consist of a complete duct layout containing the following:

- a. Total capacity, in c.f.m.
- b. Outlet specification and sizes
- c. Design outlet quantities
- d. Velocities of main branch, minor branches, necks, or cores
- e. Temperature, humidity, acceptable maximum and minimum room air velocities

"f. Acceptable noise levels in areas to be conditioned."

Honerkamp outlined the basic procedure to follow in checking a system with compound ducts and multiple branches.

"1. Open all duct and outlet dampers.

"2. Check fan capacity against design capacity.

"3. Check the capacity of the least-favored duct branch.

"4. Adjust the other duct branches so they agree with the least-favored branch in relation to actual design capacities. When this adjustment is made, make sure the quantity of the least-favored branch has not been unduly increased.

"5. Adjust the fan speed to

increase the capacity of the unit up to design rating.

"6. Check the fans out for mechanical difficulties like belt slippage, voltage, etc."

The same basic procedure covers the simpler single-duct systems.

Honerkamp then went on to list the several things that could go wrong with an air distribution system, pointing out the items to check in each case.

Poor Air Supply

In discussing insufficient air supply, he said one of the first things to consider is the blower capacity. Is it rotating in the right direction? Check the static pressure against which it is operating by measuring static pressure on the discharge as well as on the intake side. If possible, change the r.p.m. by tightening belts or changing pulleys, or even replacing the motor.

Dirty filters are a common

cause of difficulty and are also responsible for smudging ceilings and walls.

If the heat load of the coils drops without a corresponding decrease of cooling and dehumidifying coil performance, the cooling coil may ice up and restrict air flow.

"Two-by-fours have been found in ducts," Honerkamp said in detailing the need for cleanliness in the air distribution system. "Tools, scrap metal, waste materials have all been carelessly left in a system."

Abrupt changes in duct direction can decrease air capacity. Turning vanes should be designed into the system.

Dampers should be checked for proper location and installation.

Uneven Air Supply

"Sometimes the difficulty is not a lack of capacity, but rather excessive air motions or uneven air discharge," Honerkamp continued. "There are many causes of such difficulties; often something as basic as open doors or windows are the source of trouble. Stairwells or exit doors are frequently overlooked in this regard."

"If the trouble is one-sided air flow, install equalizing deflectors at the take-off. The deflector blades should be set vertically and run at a right angle to the direction of the air approach."

"If the air is splashing (excessive downward air flow caused by insufficient distance between air diffuser and walls, columns, and the like), check the rate of air supply and rebalance if necessary. Look for one-sided air flow. If the air diffuser capacity is correct and the air flow equalized, reduce the air flow towards the critical area by such means as installing blank-off baffles," he continued.

"For minor adjustments it is possible at times to install an equalizing deflector in the neck of the air diffuser and set the blades to deflect the air away from any obstruction."

"Excessive downward air flow caused by insufficient velocity energy in the air stream is termed 'spilling' and is usually due to a neck velocity lower than that recommended. If possible, increase the rate of air supply. Otherwise, install two equalizing deflectors in the air diffuser neck. Their blades should run at right angles to each other, with the center blades set so as to discharge towards the outer passageways of the air diffuser."

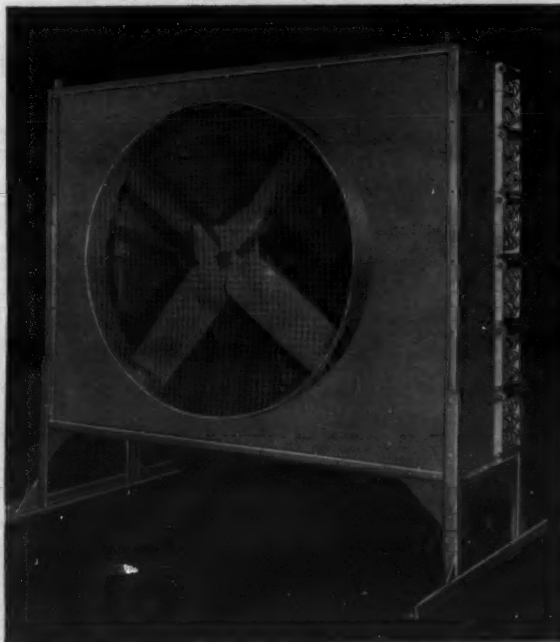
"If air distribution seems to be in order, but complaints of drafts are still made, check the wet and dry-bulb temperatures in the room to make certain they are within the acceptable limits of the 'comfort zone.'"

(Concluded on next page)

9 - 11 - 15 - 20 - 25 - 30 - 40 - 50

NOW...

8 SIZES
UP TO
50 TONS
In a Single Unit



McQuay "AB" Belt Drive AIRCON

Remote, waterless condensers available in eight sizes, 9, 11, 15, 20, 25, 30, 40 and 50 ton nominal capacities in individual units with single fan and motor assemblies. Coils constructed of copper tubes with McQuay Ripple Fins. Lifetime ball bearing and slow speed propeller type fan.

McQUAY AIRCON Air Cooled Condensers

Here is the finest, the most complete, most versatile, the most efficient line of remote air cooled condensers on the market, as well as the largest available in a single unit. There are eight McQuay "AB" Belt Drive AIRCON Air Cooled Condensers from 9 to 50 ton nominal capacities. McQuay also offers the "AD" Direct Drive AIRCON Line of Air Cooled Condensers in 2, 3 and 5 ton nominal capacities. All McQuay AIRCONS are designed for multiple circuiting so that two or more separate refrigeration systems can be connected to the same condenser.

PEAK PERFORMANCE ALL YEAR 'ROUND WITH "SEASONTROL" MODULATION.

The McQuay "Seasoncontrol" modulates the condenser capacity in accordance with the weather for proper operation at all times. There is a McQuay representative in every principal city, or write McQuay, Inc., 1607 Broadway St., N.E., Minneapolis 13, Minn.



McQuay INC.



AIR CONDITIONING
HEATING
REFRIGERATION

Thinking of—

- changing territories
- expanding your territory
- taking on new lines—

Check the
CLASSIFIED ADS

Your opportunity may
be there.

Causes of Draft Sensations--

(Concluded from preceding page)

"Occasionally, a system which was designed for heating and ventilation will raise complaints of drafts when cooling is added. If the system cannot adequately be adjusted, it may be necessary to change those elements of the system which do not satisfy the new conditions."

'Noise Measurement Is Confusing'

In discussing noise, Honerkamp admitted that "while we have good standard units to measure temperature, pressure, air flow, and other variables, we have about 16 confusing units by which to measure sound—none of which seems to serve the needs of the service engineer."

To determine the approximate origin of noise, he stated, first remove the outlet without stopping the air supply. If the noise is eliminated or substantially reduced, the outlet is the source of the excessive noise.

"If the noise is still evident," he continued, determine whether it is high-pitched or low-pitched. High-pitched, rushing noise indicates that the duct system or excessive velocities are the cause. Low-pitched, rumbling noise points to the mechanical equipment of the air conditioning plant.

"Outlet noise may be caused by excessive neck velocity or one-sided air flow—both of which can be corrected by procedures defined earlier. Sharp edges or leakage can cause noise. In this case, cover sharp edges with split rubber tubing, and eliminate all leaks or rattling by suitable mechanical means, such as tightening bolts.

"Duct noise can often be reduced by reducing excessive velocity or air impingement on dampers, elbows, and take-offs. Here again, sharp edges, obstructions, leaks, can cause noise. If everything possible has been done and high duct noises continue, it may be necessary to

use sound absorbing insulation or sound traps.

"If the sound or noise originates in the mechanical equipment, such as the fans or refrigerating equipment, the service man should call in a sound engineer."

Heating and Cooling Problems

On the subject of heating problems, Honerkamp mentioned that if the entire zone is overheated, it is only necessary to adjust the thermostatic controls. If overheating occurs in individual spaces, reduce the capacity of the diffusers serving those spaces.

"Stratification is a major problem. Even when such factors as air quantity, supply air temperature, and mechanical considerations are in order, stratification may occur from

excessive infiltration of cold outside air or exfiltration of heated room air.

"Such a condition can best be prevented by correct design of the heating system. Return intakes should be near the floor in the exposed walls, if possible below windows.

"In some cases, additional radiation may be required—as when there are considerable exposed wall and window surfaces in cold climates.

It is often advisable to avoid stratification by operating the blower continuously and limiting the temperature differential during the heating season by supplying air at a high rate of changes per hour."

Where uneven room temperatures are encountered during the cooling cycle, Honerkamp said, heat gain through uninsulated ducts might be a factor, as could be uneven cooling load caused by sun radiation on one side of the building or in-

correct balancing of the system.

In either heating or cooling, unsatisfactory air cleaning may be a problem. In this case, consider the locations of the filters—they should be located to clean both fresh and recirculated air.

Use filters designed for the system and check their condition. Air velocity through the filters should be near design velocity.

Main and branch ducts should be thoroughly cleaned before starting a new air conditioning system or one which has been idle for an extended period, Honerkamp warned.

Use Instruments Properly

Honerkamp gave a brief description of the most important instruments used in the field to measure temperature, humidity, pressure, and air flow.

Concerning the use of thermometers, he advised that the bulb and stem of the thermom-

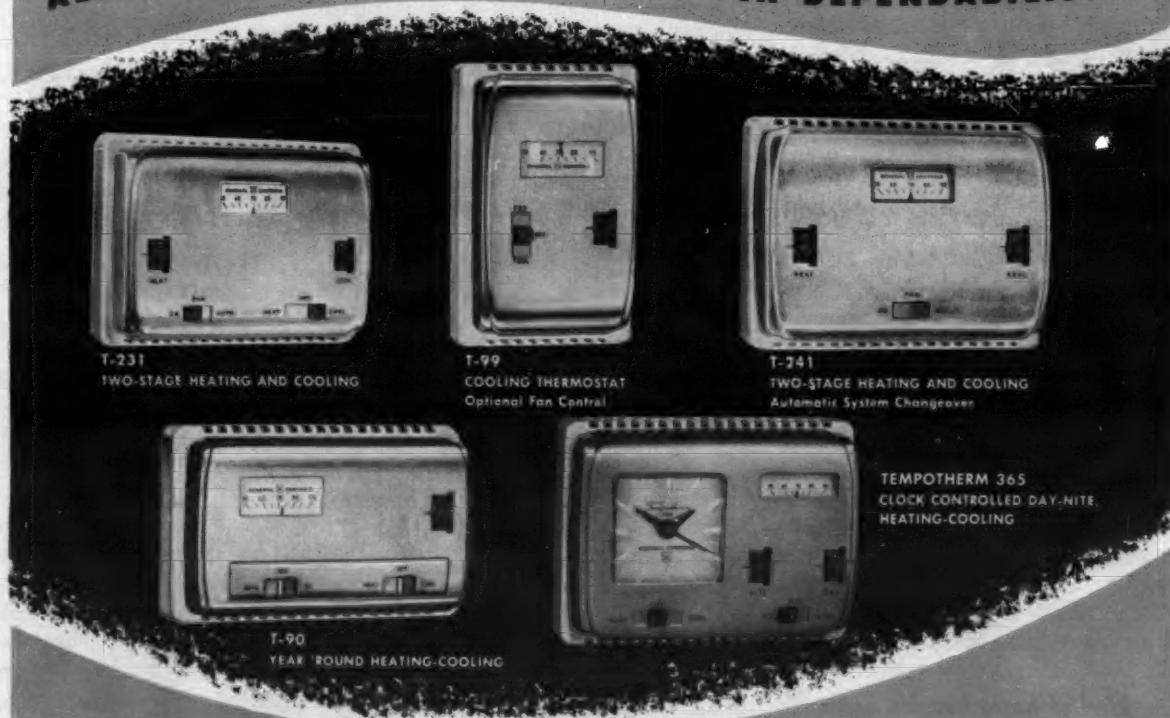
eter should be completely exposed to air and should not touch or rest upon any metal surfaces or parts of the ducts. "Readings should be taken with the thermometer in place, not after removing it from the point of measuring," he said.

When using the draft gauge, a number of readings should be taken at various points all over the duct or neck area, because results are liable to vary considerably across the area. For field measurements Honerkamp suggested the following guide:

Diameter	Number of Readings
Up to 6 in.	6
6-10 in.	8
10-14 in.	10
above 14 in.	12 to 14

Average the reading before continuing with calculations, he said. In case of square or nearly square ducts, the same number of readings as for the equivalent round duct should be used, Honerkamp concluded.

ALL WITH MODERN MERCURY SWITCH DEPENDABILITY...



AMERICA'S MOST COMPLETE LINE OF AIR CONDITIONING THERMOSTATS!

118 FUNCTION VARIATIONS TO CONTROL ANY SYSTEM

- COOL, HEAT, FAN, AUTO, OFF, RESET SWITCHING FUNCTIONS
- SINGLE OR TWO-STAGE HEATING WITH SINGLE OR TWO-STAGE COOLING
- HEAT AND COLD ANTICIPATION
- DAY AND NITE CLOCK PROGRAMMING
 - SINGLE DIAL OR TWO DIAL TEMPERATURE SELECTION
- MANUAL OR AUTOMATIC CHANGEOVER

For control of gas, oil, coal, electricity refrigeration, evaporative, chilled water and heat pump systems.

General Controls continues to set the pace in creating the kind of advanced design thermostats that afford the systems engineer maximum selectivity in air conditioning thermostats. Not only do General Controls thermostats please the homeowner by their beauty and simplicity of line, they also signify quality—and prove it by delivering the top performance engineered into systems and related equipment.

Consult your nearby General Controls office for complete details on the many air conditioning thermostats available. You design it... we'll control it... automatically.

5 basic styles harmonize with any architectural or decorating theme



GENERAL CONTROLS

America's Finest Automatic Controls for Home, Industry, and the Military
Glendale, California • Skokie, Illinois

Five Plants—40 factory branch offices serving the United States and Canada

FREE!

the only
CAPILLARY
reference GUIDE
for the industry



NO

GUESSING
CUTTING
ADJUSTING
NOISE
TROUBLE

The trend for economy and efficiency is engineered Capillaries. By all laws of refrigeration and physics demand a custom designed Capillary. A Sealed Unit Guide will help you order the right Capillary for the job!

Sealed Unit Parts Co., Inc.

261 East 161st St. New York 51, N. Y.

Send CAPILLARY Guide and prices

Name _____ City _____

Address _____ Zone _____ State _____

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark
reg. U.S. Pat.
Office:
Est. 1926

AIR CONDITIONING
& REFRIGERATION **NEWS**

Copyright
1958,
Business News
Publishing Co.

F. M. COCKRELL, Founder

'The Conscience of the Industry'

Published Every Monday by BUSINESS NEWS PUBLISHING CO., 450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924. Subscription Rates: U. S. and Possessions and Canada: \$6.00 per year; 2 years, \$9.00; 3 years, \$12.00. All other countries: \$10 per year. Single copy price, 40 cents. Ten or more copies, 30 cents; 50 or more copies, 20 cents each. Send remittance with order.

EDITOR & PUBLISHER,
George F. Taubeneck
EDITORIAL DIRECTOR,
Phil B. Redeker
ASSOCIATE EDITOR,
C. Dale Mericle
ASSISTANT EDITORS:
John Sweet
Hugh Mahar
George Hanning
Robert Lacey

TECHNICAL EDITOR, Frank Versagi
STATISTICAL EDITOR, John MacLean

GEN. MGR., Warren Jones
GEN. PROD. MGR., Walter Schuler
ADV. PROD. MGR., A. M. Barrow
SUBSCRIPTION MGR., Rosalie Ashley
READER'S SERVICE MGR.,
Vincine Mogyordol

PRESIDENT, Edward L. Henderson
ADV. MGR., Robert M. Price
WESTERN ADV. MGR.,
Allen Schildhammer
ASST. ADV. MGR., Joe Sullivan
ADVERTISING REPRESENTATIVES:
Rex Smith
Frank Taylor
ADVERTISING OFFICES:
New York, 521 Fifth Ave.
Murray Hill 2-1928-9
Robert M. Price
Frank Taylor
134 S. LaSalle St.
Franklin 2-8093
Allen Schildhammer
Rex Smith
450 W. Fort St.
Woodward 2-0924
Joe Sullivan
4710 Crenshaw Blvd.
AXminster 2-9501
Justin Hannon

Member, Audit Bureau of Circulations. Member, Associated Business Publications.

VOLUME 83, No. 7, SERIAL No. 1,508, FEBRUARY 17, 1958

costs to the point where increased volume actually reduces profits!

Better methods of upgrading corporate profitability without an increase in total volume:

(1) Price realistically, and re-emphasize products which yield a comfortable margin.

(2) Give salesmen more incentives to sell high profit merchandise rather than low profit goods.

(3) Even out seasonal sales variations to reduce production and inventory costs.

Another method of increasing profits (without overspending to increase volume) is to concentrate promotion and sales effort in those areas where potential returns are the greatest.

Getting ahead in this dizzy age isn't simple. And previous multiply-or-die theories apparently aren't automatic tickets for cashing in jackpots, we are discovering.

Perhaps, as Bruce Henderson hints so excitingly in the preceding Guest Editorial, "there are acres of diamonds in our own backyard."

Never before has the indispensable man in business been so easy to identify. He is the salesman. He holds the key to the stability, the security, the expansion of our American economy.—FRANK KINGDON.

Problems our forefathers never dreamed of will face posterity, such as how to crowd two coffee breaks, lunch, a meeting of the bowling league, and a bridal shower for stenographers into a four-hour working day.—*Universalist Leader*.

Handy Way to Subscribe

To See the Industry in Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, heating, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only \$6.00 per year, 52 issues (U.S. and Canada). Foreign: \$10.00 per year.

AIR CONDITIONING & REFRIGERATION NEWS 2-17-58
450 W. Fort St., Detroit 26, Mich.
Send the NEWS every week for: ☐ One Year \$6. ☐ Three Years \$12.
☐ Payment Enclosed ☐ Bill Me ☐ Bill Company

Name.....
Company.....
Street.....
City..... Zone..... State.....

IMPORTANT: Company's Type of Business.....

They'll
Do It
Every
Time
by
Jimmy
Hatlo



Great Day Coming for Us

(Concluded from Page 1)

ment pictured in his text, printed in 1935, was apparently only slightly different from present day equipment.

I would like to predict that the next three to eight years will see changes in the characteristics of the air conditioning and home heating equipment industry which will be far more revolutionary than anything that has occurred in the last 40 years.

You will see air conditioning and heating units for whole houses which are smaller and more compact than present day room coolers, and can be installed and put in operation more quickly and more easily. The serviceman who installs them will carry them in under one arm. If electrical connections are ready he will be able to make the installation of the equipment and get it running in a matter of minutes rather than hours. The equipment will be almost silent and will be virtually free of any kind of vibration. The air conditioning that is produced will be superior to most of today's air conditioning because it will produce the right humidity and temperature for the result to be obtained rather than using an on and off device which had only one kind of output.

This new kind of home heating and cooling device will only furnish clean air—electronically cleaned—not just filtered air.

In order to manufacture a unit of this

type we will develop and put into production compressors, including their motor, no larger than a bowling ball. We will have heat exchangers many times as efficient and far more compact than today's heat exchangers. The whole system will be miniaturized and will be manufactured by automatic methods.

The startling portion of this is that we know exactly how to do all this as of today. No new discoveries are required to make this possible. It is merely a matter of putting the necessary effort into engineering development and the necessary manufacturing study to lower its cost. We know how to do that too!

One of your reader's "letter-to-the-editor" referred to expenditures for research and development of 2%, 3%, 5%, of the sales dollar as if they were large expenditures. I believe that any manufacturer of air conditioning who is spending less than 5% of his sales dollar in this way is not going to be among those competing ten years from now. I know that Westinghouse is spending far more than this of its air conditioning sales dollar for development.

The air conditioning industry has finally grown big enough to support the kind of engineering development needed to enable it to fulfill its promise. There is a great day just ahead of us!

BRUCE D. HENDERSON,
Vice President

Fundamentals Overlooked

SOMETIMES WE LAUGH at the proverbial fast-buck operator who boasts: "I lose money on individual sales, but look at my volume!"

The laws of mathematics are against him. So we smile at his ignorance. Could it be possible that a few presently prevalent ideas about marketing our industry's products might be equally invalid?

Take this familiar corporate dictum: "We have the finest product on the market. We could outsell our competitors if only our salesmen would get on the ball."

Not necessarily so! Let's admit, for the sake of argument, that X company does have the finest product on the market. (And who hasn't?) What about its price? Is it out of line with competitors? Is the public willing to pay the extra tab for hidden quality?

What about dealer profit margins and salesmen's commissions? Are salesmen and dealers awarded adequate compensation for

their extra efforts to sell quality in the face of a potent price story offered by competitors?

With these questions unanswered, it might not be the salesman's fault if the best product is not the best seller.

Another problem, frequently met: A banker-orientated Board of Directors will order: "Let's add another line of products; thus reduce unit selling costs."

Adding another product and attempting to sell it through the same organization rarely reduces selling costs. It may even increase them.

You see, to promote this new product a manufacturer often must hire more salesmen and marketing advisers (thus increasing his sales costs) or settle for less volume in both the new and old lines.

Occasionally a beleaguered company will ukraine: "We need more profit; hence let's get more volume."

So a "crash program" raises overhead

How 'Vapomatic' Defrost System Operates

Circulates Latent-Heat-Saturated Vapor Into Evaporator

DETROIT—How the Recold "Vapomatic" defrosting system operates was explained by Hal Jarvis, advertising manager of Recold Corp., at a meeting of the Greater Detroit Chapter of Refrigeration Service Engineers Society.

Jarvis explained that the Vapomatic defrosts by circulating saturated vapor, containing large quantities of latent heat into the evaporator, during the defrost cycle.

A hot-gas line is tied off the high side of the compressor between it and the condenser. This line has a normally-closed solenoid valve in it which controls the defrost cycle. The line is bonded to the evaporator drain line by a bead of solder or straps, and runs through coils in the drain pan, thence into the bottom of the evaporator coil, by-passing the expansion valve.

A "Vapot," a specially designed heat exchanger-accumulator, is located in the suction line and contains a few turns of coiled tube, through which the liquid refrigerant passes in its route from condenser to evaporator.

Vapors By-Pass Expansion Valve

When the solenoid is opened in the defrost line, the defrosting vapors rush into the coiled drain pan on the evaporator, out of it, and into the evaporator itself, by-passing the expansion valve.

All of the liquid refrigerant standing in the coil is pushed out immediately into the Vapot. The Vapot is carefully sized as to volume to hold the normal operating charge of the evaporator plus an additional 50% for a safety factor.

Inside the Vapot there is a break in the suction line. The entering gas and liquid is dumped into the bottom of the Vapot, passing over the coiled liquid line.

Only Gas Is Drawn To Compressor

The continuation of the suction line is formed U-shaped so that the outlet is located at the top of the Vapot, permitting only gas to be drawn out of the Vapot to the compressor.

A tiny bleed tube is connected to the U-shaped suction line at its lower extremity. Its function is to pick up liquid refrigerant and meter it into the suction line in tiny droplets, transforming

the suction gas into a saturated vapor.

These droplets, too small to cause damage, contribute to the cooling of the compressor by vaporizing in the compressor.

Latent heat picked up in the vaporization of the droplets is carried in the relatively cool vapor rushing through the evaporator and is transferred to the evaporator coil accomplishing rapid defrosting.

Limit Thermostat Terminates Cycle

The defrost cycle is terminated by a limit thermostat which breaks the circuit permitting the solenoid valve to close, returning the machine to its normal refrigeration cycle.

One factor that does not re-

turn to normal is the beneficial transfer of liquid line heat to the suction gas in normal operation, due to the liquid line passing through the Vapot.

The Vapomatic defrosting system is started by an electric timer that opens the solenoid valve to start defrost as often as desired. The limit thermostat which terminates defrost is the remote bulb type. The bulb is attached to the outlet of the evaporator at about the same location as the expansion valve bulb.

Jarvis stated that the Recold Vapomatic system works equally well in any installation from just below freezing to extremely low temperatures, with water or air-cooled condensers, and with open or sealed compressors.

WHAT... WHEN... WHERE

— A Guide to Coming Events of Interest

National Electrical Manufacturers Association Meeting
March 10-13, Edgewater Beach hotel, Chicago.

Gas Appliance Manufacturers Association Annual Meeting
March 31-April 2,
The Greenbrier, White Sulphur Springs, W. Va.

Air-Conditioning & Refrigeration Institute Annual Meeting
May 4-7, The Homestead, Hot Springs, Va.

National Restaurant Association Convention, Exposition
May 5-9, Navy Pier, Chicago.

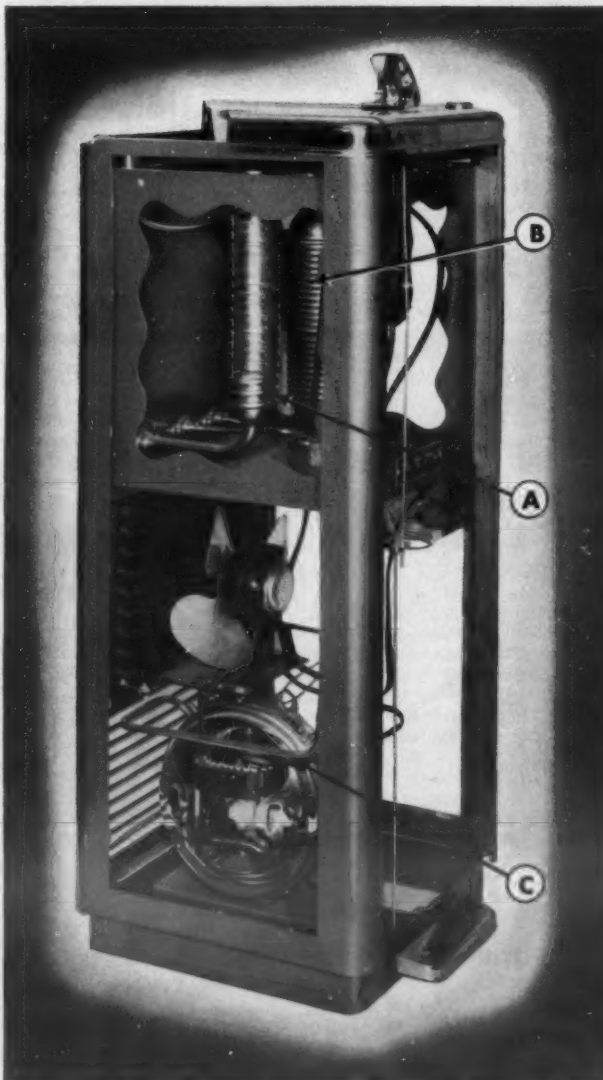
Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit
May 7-11, Shrine Exposition Hall, Los Angeles.

Edison Electric Institute Annual Convention
June 9-12, Boston.

Oil Heat Institute of America Convention, Exposition
June 9-13, New York City.

American Society of Heating & Air-Conditioning Engineers and American Society of Refrigerating Engineers JOINT MEETING
June 23-25, Leamington hotel, Minneapolis.

There's COLD in them thar FOUNTAINS



TEMPRITE DESIGNERS

USE WOLVERINE TUBE

In the Temprite Products Corporation water cooler illustrated here, there are three individual applications of Wolverine copper tube:

A. The spun end heat exchanger and the tubing coiled around it (shown again at right below).

B. Wolverine commercial refrigeration copper tube is coiled around the cooler proper.

C. The capillary tubing from the condenser to the evaporator.

This Temprite application is an excellent example of the wide variety of tubular products manufactured by Wolverine Tube for American industry.

The Wolverine copper commercial refrigeration tube, for example, which carries the refrigerant that cools the water in the cooler, is of the highest quality available. It is clean, dry, consistent in temper and produced to the most exacting dimensions.

The spun end heat exchanger is the product of Wolverine's Copper Spun End Process† which eliminates many machining and assembly operations in turning out one-piece tubular parts with partially or fully closed end treatments. It takes the cold drain water and serves as an exchanger to pre-cool fresh water coming into the cooler.

In Wolverine Capilator®, Temprite design engineers utilized a capillary tubing manufactured expressly for precision control in the metering of liquids and gases. Capilator is held to such close tolerances that it can be produced to meet customers' stated flow requirements. It does exactly this for Temprite's quality cooler line which is manufactured at Temprite's plant in Birmingham, Michigan.



Products such as these are the result of Wolverine's Tubemanship program. Your company, too, can benefit from Wolverine's experience, research and sound engineering. For complete information about Wolverine products and services write for your copy of the Wolverine General Products Catalog.

BUY WOLVERINE TUBE - IT'S MADE IN AMERICA!

CALUMET & HECLA, INC.
CALUMET DIVISION
URANIUM DIVISION
GOODMAN LUMBER DIVISION
WOLVERINE TUBE DIVISION

In Canada:
CALUMET & HECLA OF CANADA LIMITED
WOLVERINE TUBE DIVISION
CANADA VULCANIZER & EQUIPMENT CO. LTD.
WINIFR TUBE DIVISION

WOLVERINE TUBE

DIVISION OF
CALUMET & HECLA, INC.

17246 Southfield Road
Allen Park, Michigan

Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPARTMENT, 13 EAST 40TH STREET, NEW YORK 10, NEW YORK

For more information about products advertised on this page use Information Center, page 22.

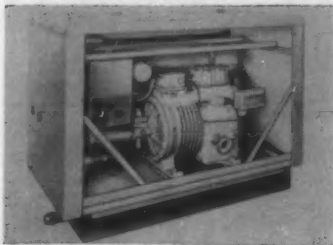
MIGHTY MITE
THERMAL PROTECTORS

FOR
MOTOR
OVERLOAD
PROTECTION

**MECHANICAL INDUSTRIES
PRODUCTION COMPANY**
223 ASH STREET • AKRON, OHIO

†A PATENTED PROCESS RE 22691

Packaged Chiller Produced In Three Sizes



KEY NO. H-230

BROOKLYN—A packaged chiller for water and liquids is now being marketed in three sizes from 3 to 7½ hp. by Embassy Steel Products, Inc.

Designated models EWC-30, EWC-50, and EWC-75, they are engineered to meet liquid cooling requirements for residential cooling, industrial processing, and air conditioning applications. Because of their flexibility in application and capacity, they are suited to small and multiple installations, the firm states.

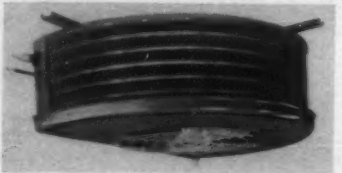
Chiller is fully cork insulated and compact. Compressor has a semi-hermetic motor assembly, direct connected, and is spring mounted for quiet operation. The condenser has been selected for low pressure drop and use on city water or a cooling tower.

Redesigns Half-Turret 'Humi-Temp' Unit

KEY NO. H-231

ATLANTA—Larkin Coils, Inc.'s half-turret "Humi-Temp" unit is an entirely new design.

Quiet operation is claimed to be assured by slow-speed motor mounted in a resilient rubber base connected directly to mounting bars for minimum vibration.



AMERICAN-Standard
BRINGS YOU AN UNPRECEDENTED

USE-IT-YOURSELF

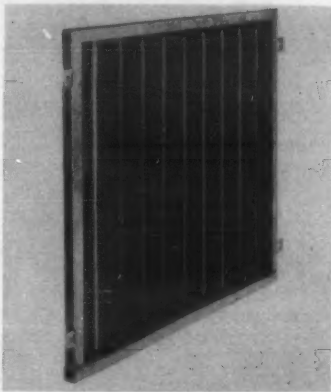
AIR CONDITIONING OFFER

It's hard to sell a product you don't use yourself—especially when the customer knows that you don't. Yet some air conditioning dealers are still living in non-air-conditioned homes... and conduct business from non-air-conditioned shops and showrooms.

To eliminate this sales handicap, American-Standard Air Conditioning Division presents a new and unique Use-It-Yourself Air Conditioning Offer. This offer enables you to install full-scale air conditioning in your home or place of business at a low cost you would hardly have believed possible. We've gone all out to make the deal irresistible because we know that when your friends, neighbors or customers actually see and feel the benefits your system produces, they too will want air conditioning. As the Du Pont Survey pointed out, neighbors of central air conditioning users are the best source of additional sales by a ratio of more than 3 to 1!

Nothing sells air conditioning like air conditioning itself. So Use-It-Yourself and watch your sales grow. Your local distributor for American-Standard Air Conditioning Division products is the man to see.

*AMERICAN-Standard and Standard® are trademarks of American Radiator & Standard Sanitary Corporation.

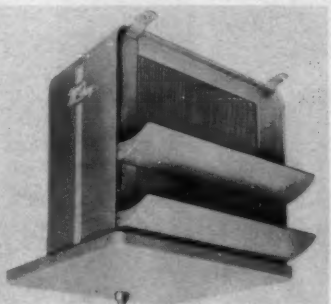


Offers Activated Carbon Air Filter

KEY NO. H-232

DANBURY, Conn.—A simple, low-cost activated carbon air filter for commercial and home conditioners is being offered by Connor Engineering Corp. It is recommended for either package or central systems where the air is recirculated with no provision for outside air ventilation.

The panel-shaped type R filter has a metal frame supporting several densely packed columnar beds of activated carbon firmly held in wire mesh, interspersed by air bypasses. It fits directly behind the dust filter and is made in the same dimensions as four standard sizes of the latter: 16 x 20, 16 x 25, 20 x 20, and 20 x 25 in., with capacities of 640 to 1,000 c.f.m.



Unit Cooler Has Range of 10 Sizes

KEY NO. H-233

MINNEAPOLIS—Capacity up to 44,000 B.t.u.h. at 10° T.D. is now available in the new unit cooler announced by McQuay, Inc. This "Pacemaker" model U-4400 is designed for walk-in coolers and chill rooms.

There are 10 sizes of Pacemakers in the McQuay line. They range from 4,500 to 44,000 B.t.u.h. at 10° T.D. with from 781 to 8,300 c.f.m. capacity, and have aluminum fin, copper tube coils, housed in continuous galvanized steel cabinets, bonderized and painted.

Can Tuck 'Mighty Mite' Furnace In Corner

KEY NO. H-234

PASADENA, Calif.—Holly-General Co. has announced its newest model, the "Mighty Mite," a 58,000 B.t.u. gas-forced air 10-in. wide furnace.

Requiring 1 ft. or less of space, the Mighty Mite furnace can be tucked away in any corner or closet. Equipped with an automatic wall thermostat, all integral controls are factory wired, including the summer ventilating switch. Other features include the adjustable speed blower and air filter.



Introduces Belt-Driven Exhaust Fans

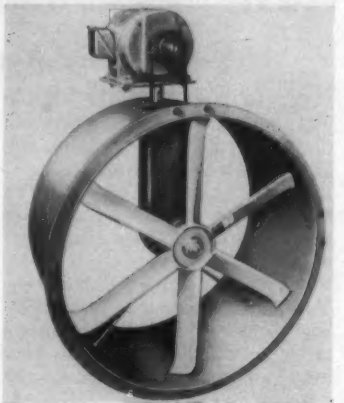
KEY NO. H-235

CHICAGO—A new series of belt-driven exhaust fans available in 18, 24, 34, and 42-in. diameters has been announced by the Binks Mfg. Co.

The fans are designed to provide maximum exhaust per horsepower used.

Fans furnish static pressure from ¼ to 1¼ in. The volume of air moved ranges up to 28,375 c.f.m. This performance is based on average motor speed of 1,725 r.p.m., it was stated.

Aluminum fan blades are driven by V-type belts passing through dust-tight housings, the company said.



Announces Gas-Fired Winter Conditioner

KEY NO. H-236

ELYRIA, Ohio—Completing the "Luxaire" line of gas-fired winter air conditioning units, which are completely assembled and wired at the factory, the C. A. Olsen Mfg. Co., has announced a new 150,000 B.t.u. input assembled and wired furnace. Other sizes in the Luxaire line of assembled and wired gas furnaces have capacities of 75,000, 100,000, and 125,000 B.t.u. input.

New Luxaire unit features

heavily constructed 16-gauge steel sectional heating elements and 21-gauge cabinets. It is approved for close clearance installations at both sides and at the rear with no additional cost.

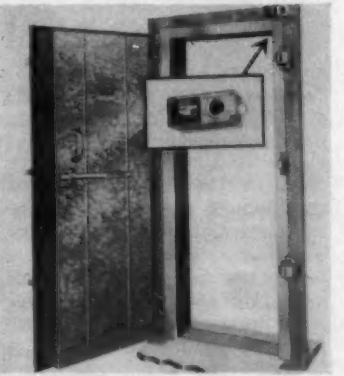
Cabinet is constructed with a standard return air intake at the bottom. Knockouts, provided in both side panels and in the rear panel, make it easy to cut openings of the proper size for the installation of an accessory filter frame for side air intake, or of a matching enameled return air cabinet on the rear or either side, the company said. Cabinet dimensions are: 26 in. wide, 29 in. deep, and 57 in. high.

Thermoswitch Provides Door Icing Protection

KEY NO. H-237

HAGERSTOWN, Md.—A new type thermoswitch which provides adjustable temperature control for protection against icing of low temperature and freezer doors is now being used with the Jamison Cold Storage Door Co.'s "Frostop" which provides a temperature above the dewpoint at point of gasket contact.

New control is said to provide foolproof operation along with maximum protection as it maintains temperatures between 60° and 120° F. The 60° F. minimum temperature prevents condensate from forming.



Information Center

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised
(list name, page, and issue date)

What's New or Current Literature Available

Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.

Name Title
(Please Print)

Company

Street

City Zone State

Type of Business

MAIL THIS FORM TO
AIR CONDITIONING & REFRIGERATION NEWS
Readers Service Dept.
450 W. FORT ST. DETROIT 26, MICHIGAN

Home Builders View New Heating, Cooling Equipment



—KEY NO. H-238—

ADMIRING WHIRLPOOL Corp.'s new Imperial through the wall air conditioner is Marcia Crawford of Chicago. Ranged behind her are deluxe, custom, and central unit models.



—KEY NO. H-2312—
INSPECTING MUELLER CLIMATROL's new type 919 cooling coil cabinet on a type 317 gas-fired low boy furnace are Andrew G. Klein (l.), and Robert L. King of Home Gas Industries, Mueller distributor in the Chicago area.



—KEY NO. H-2313—
NOW IN PRODUCTION is Bryant Mfg. Co.'s model 577 air conditioning and heating package unit, Hes Swallow (l.), Bryant regional manager, tells R. P. Rosenthal, of Crystal Lake, Ill.

(Please turn page for more picture coverage of the National Association of Home Builders exhibits.)



—KEY NO. H-239—

HEIL-QUAKER gas-fired sectional warm air furnace with non-baffled heat exchanger is new this year for Heil-Quaker Corp. Peter Costomiris, Quaker Div. sales manager, goes over features with R. J. Heiting, sales manager for the Pittsburgh territory.



—KEY NO. H-2310—

NEW RICHMOND PACKAGED cast iron oil-fired boiler for use with hydronic systems, shipped completely assembled ready to install, is examined by E. L. Wolf, Pittsburgh district manager for Richmond Plumbing Fixtures Div. of Rheem Mfg. Co. (l.), and L. S. Maehling, manager of heating sales for Richmond.



—KEY NO. H-2311—

NEW SPI-ROL-FIN zone controlled forced hot water baseboard heating system for split-level homes catches eye of John Fischer, St. Louis (center). Telling him about it are R. C. Edwards (l.), president of Edwards Engineering Corp. and Don Altwood, Edwards salesman.

Three men in agreement:
Tube joints brazed with
SIL-FOS and EASY-FLO are best...
FOR WATER SYSTEMS, FOR AIR-CONDITIONING SYSTEMS,
FOR HEATING SYSTEMS



Architects, Engineers and Plumbing Contractors all find that silver brazing nonferrous pipe and tubing systems with Handy & Harman SIL-FOS or EASY-FLO is the simplest, surest, most economical way to permanently bond all joints. Here's why:

1. **Simplest because** silver brazing eliminates all threading, cuts way down on handling and assembly time.
2. **Surest because** SIL-FOS and EASY-FLO joints are stronger than the parent metal itself. Creep, vibration, turbulence are minimized...joints are positive, leak-tight, maintenance-free.
3. **Most economical because** silver brazing permits use of lightweight tubing—saves tons in weight and in material, installation and handling costs.

New structures of every description are getting the "brazed joint treatment" in their water, air-conditioning

and heating systems...let us show you how Handy & Harman silver alloy brazing can make the next job you do easier and more profitable.

YOU'LL BE OFF TO A GOOD START WITH THESE:
Bulletin 17—How to Braze Pipe and Tubing

Bulletin 20—Tells and shows you why and how SIL-FOS and EASY-FLO make leak-tight and maintenance-free joints a permanent certainty

Brazing News #71—Tells why plumbing contractors for office buildings, institutions, apartments are "brazing in" with SIL-FOS and EASY-FLO

DISTRIBUTOR LIST

There's an authorized SIL-FOS and EASY-FLO distributor near you. If you don't know his name, our Distributor List will tell you who and where he is; send for it.

Your NO. 1 Source of Supply and Authority on Brazing Alloys



HANDY & HARMAN
General Offices: 52 Fulton St., New York 36, N. Y.
DISTRIBUTORS IN PRINCIPAL CITIES

OFFICES AND PLANTS
BRIDGEPORT, CONN.
PROVIDENCE, R. I.
CHICAGO, ILL.
CLEVELAND, OHIO
DETROIT, MICH.
LOS ANGELES, CALIF.
TORONTO, CANADA
MONTREAL, CANADA

For more information about products advertised on this page use Information Center, page 22.

Home Builders See Heat Pump Progress

For additional information on these products shown at the National Association of Home Builders exhibition in Chicago please refer to Key Numbers and "Information Center" blank on page 22. Other pictures from the NAHB show are on the preceding page. Additional picture coverage also appeared in the Feb. 10 issue.

—KEY NO. H-2314—
NEW ELECTRIC FURNACE to which air conditioning and heat pump can be added was displayed by Majestic Co., Inc. Howard Mickley, Majestic representative in southwestern Indiana and southern Illinois, points out that heat pump is made in 3 and 5-ton sizes with 65,000 and 90,000 B.t.u. heating capacities.



—KEY NO. H-2315—
FIRST SHOWING OF Holly-General Co. condensing unit for residential applications was made at Builders Show. E. S. Kent, assistant to vice president in charge of sales stands ready to answer questions.



—KEY NO. H-2316—
LEGS ARE OPTIONAL feature on new American-Standard factory assembled oil-fired package for low cost home building market shown here with through-the-wall air conditioning attached. Bill Fisch (l.), sales representative, and Bill Semple, district representative of American-Standard Air Conditioning Div. pose with unit.



—KEY NO. H-2317—
DISCUSSING BUILDER interest in new heat pump displayed by Airtemp Div., Chrysler Corp. are Jack Davidson, manager of sales applications for Airtemp (l.), and Harry Young, general manager of Airtemp's mid-west zone.



—KEY NO. H-2318—
DEMONSTRATING INTERNAL WIRING of Westinghouse heat pump for J. H. Nilles, Aurora, Ill. heating contractor (l.), is Horace Carter, assistant to the northeastern regional manager of Westinghouse Air Conditioning Div.



—KEY NO. H-2319—
NEW 1½-HP. RHEEMARE with 30,000 B.t.u. capacity tickles Clarence Ahrens (l.) of St. Louis who gets it straight from E. F. Malarkey, Chicago regional sales manager for Rheem Mfg. Co.



Motor-run and motor-start capacitors in . . . the **CAPACITY** and **VOLTAGE** you need! the **CASE-STYLE** and **SIZE** you want!



Specify AEROVOX AC CAPACITORS

Only from Aerovox can you choose from the widest variety of case-styles and sizes you want in a complete range of capacity and voltages for your air conditioner requirements. And, when you specify Aerovox AC Capacitors you are assured of getting the proper capacitor of the highest quality for long, trouble-free applications.

If your requirements call for special designs, Aerovox's design engineering representatives have the necessary training and experience to assist you on short notice in

solving your special capacitor problems. You are invited to draw upon Aerovox's years of pioneering experience in the design and manufacture of AC capacitors for the air conditioning, refrigeration and motor industries.

If you specify or buy AC capacitors, send today for your free copies of our two new bulletins covering AC motor-start and motor-run capacitors. Technical and general application information is included as well as complete specifications and sizes on all standard stock items.

AEROVOX CORPORATION
NEW BEDFORD, MASS.

Takes Sun, Wind Into Consideration

Outdoor Thermostat Measures Weather Effects, Regulates Indoor Heat Input

MINNEAPOLIS — Minneapolis-Honeywell Regulator Co. announced development of a new indoor-outdoor temperature control system that is electrical, low in cost, and easy to install.

'Low-Cost Design for Average Homeowner'

It is designed, the company said, "to bring the advantages of this modern comfort concept within the reach of the average homeowner's pocketbook."

The new system features a specially developed outdoor weather sensing unit that measures the combined effects of the sun, wind, and temperature and automatically regulates indoor heat input accordingly. The company said this was the first electrical indoor-outdoor system to take the sun and wind into consideration.

The system includes a choice of the company's (T86) indoor round thermostat or its indoor electric clock thermostat, both of which have been modified to receive signals from the outdoor thermostat.

A standard low-voltage transformer completes the package. A wiring terminal board is mounted on the transformer to provide ease of installation.

Outdoor Thermostat Controls Indoor

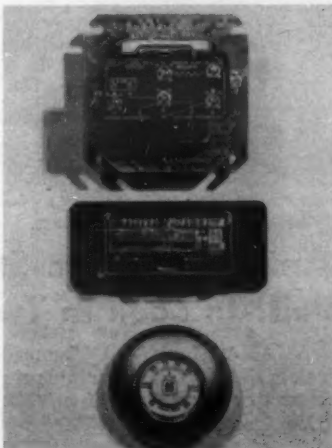
"As outside temperature drops, the outdoor thermostat transmits a signal to the indoor thermostat, causing it to feel colder and raise its control point until it is again satisfied," the company explained.

"The outdoor thermostat (designated T846A) is calibrated to start resetting the indoor thermostat control point when the outside temperature drops below 55°. Experience has proven that resetting is not necessary until the outside temperature goes below 55°."

"The indoor thermostat's reset ratios are adjustable depending on climatic and construction differences to provide comfort at all times."

"Not only does the outdoor thermostat detect temperature changes effected by the wind, but it also senses sun response through its glass cover, which insulates and permits direct or reflected sunlight to enter and be absorbed in its interior."

The new Honeywell control system is designed for use with either the company's indoor electric clock thermostat (designated T856A), an automatic shutdown and pickup model, or its indoor round thermostat (designated T855A), which features a dust-proof mercury switch.



"The new indoor-outdoor control system with the indoor electric clock thermostat normally can be installed for about \$100," it was stated. "When the indoor round thermostat is utilized, the system can be installed for approximately \$50. These costs will vary depending on local electrical codes."

Can Control 4 Indoor Units

"A single outdoor thermostat may compensate up to four separate indoor thermostats simultaneously and may be used for both heating and cooling."

THIS new Minneapolis-Honeywell indoor-outdoor temperature control system is designed to bring claimed advantages of the system within reach of every homeowner. It features a graphic wiring panel attached to standard transformer. Drop in outside temperature causes the outdoor thermostat (center) to transmit a signal to the round indoor thermostat, which causes it to call for more heat.

Plumbing-Heating-Cooling Group

Expects Booklet To Aid Sales Drive

CHICAGO—One million "ambassador-salesmen" for plumbing-heating-cooling products and services is the goal of an all-out drive launched recently by the Plumbing-Heating-Cooling Information Bureau.

The bureau put into the mails 1,000 copies of an 8-page membership booklet as the first step in getting industry-wide participation in its drive to boost sales to private citizens.

In addition, the bureau announced plans to carry its message directly to contractors, wholesalers, and manufacturers, through state and national conventions in coming months.

"Our goal is \$1 million a year by 1960, raised by dues payments based on \$1 per person for each of the one million

people in our industry," explained William A. Landers, president.

"We must go modern in our battle for the consumer and business dollar," he added. "We can't afford to lag behind other industries."

"To start the ball rolling and prove that PHCIB means business, we've set \$250,000 as the target to support our program."

The membership booklet, entitled "Facts About Your Future With PHCIB," will go initially to 700 manufacturers and to all associations.

The National Association of Plumbing Contractors, the Mechanical Contractors Association, and Central Supply Association will circulate additional thousands of copies.



"We have nothing else to do but help you MAKE A PROFIT"

GET THE FACTS ON THE STEWART-WARNER FRANCHISE!

Send today for complete information on the Stewart-Warner Franchise...find out how it can be the foundation of a bigger, more profitable business.

The Stewart-Warner Corporation's unvarying objective is that its dealers must be successful...every activity of this organization is directed to that end. For example, the sole duty of the group of District Sales Managers shown here is to help franchised Stewart-Warner dealers the country-over translate better products into bigger profits!

What the Stewart-Warner Franchise offers...

- First, close association with a company known for half a century for the quality of its products, its integrity and stability. Stewart-Warner is in the heating and cooling business to stay!
- The Stewart-Warner line of heating and cooling equipment is complete in every respect—no new building or modernizing requirement which can't be satisfied. Every unit in this line can be demonstrated to be of outstanding quality and efficiency.
- Stewart-Warner has developed successful selling processes which enable dealers to make a fair profit on every sale.
- A national advertising program...supported by a Cooperative Advertising Plan and a complete assortment of sales promotion material which enables you to conduct your own personalized sales program.

EVERYTHING FOR HEATING AND COOLING



Oil and Gas Baseboard and Vertical All-year Conditioners

STEWART-WARNER

HEATING AND AIR CONDITIONING DIVISION • Dept. BA-28, Lebanon, Indiana

THESE ARE THE QUALITY PRODUCTS OF THE STEWART-WARNER CORPORATION

ALEMITE Industrial and Automotive Lubrication Equipment, Lubricants and Chemicals, such as CD-2, KLEEN-TREET and COOLING SYSTEM CONDITIONER • STEWART-WARNER Electronics Equipment and Systems, Commercial and Military • BASSICK Casters, Wheels and other Materials Handling Devices, Flo-Tilt Office Chair Controls • STEWART-WARNER Speedometers and other Automotive, Industrial and Marine Instruments • SOUTH WIND Aviation Heat Exchange Products and Instant Automotive Heaters and Mini Heater • STEWART-WARNER SAF-AIRE and WINKLER Heating and Air Conditioning Equipment • STEWART Die Castings • HOBBS Electric Hour Meters • BASSICK-SACK Furniture Hardware.

All of above trade names are the property of Stewart-Warner Corporation



Safely supports hanging pipes, conduits and cables up to 500 lbs. 3/4 in. 20 gauge electro-galvanized steel. 1/4 in. holes on 1/2 in. centers. Various lengths available. Send for literature.

MINERALLAC ELECTRIC COMPANY
25 N. PEORIA ST. • CHICAGO 7, ILL.



Symbol of
SW
Excellence

For more information about products advertised on this page use Information Center, page 22.

Norge Features Ice Cube Maker To Deliver, Store Automatically

CHICAGO—An ice cube making invention that makes, delivers, and stores cubes automatically is a top feature in the 1958 Norge refrigerator, currently being introduced by the Norge Div., Borg-Warner Corp.

Norge claims that this is the first time automatic ice making and delivery is incorporated in an electric refrigerator.

Judson S. Sayre, Norge president, said the company invested nearly \$3 million in equipment and tooling cost for the new 1958 refrigerator. This is a record amount for any single appliance in the company's 32-year history, he added.

Other features in the new refrigerator are swing-out shelves and a lever-controlled shelf spacer.

The new features are incorporated in double door and single door 13-cu. ft. models. The five-model line also includes two 11-cu. ft. boxes, one with automatic defrosting, and an 8.5-cu. ft. model. Sayre said prices are practically the same as for comparable 1957 models.

Angular styling and a door that swings within its width gives built-in design to the new line.

Norge calls its ice-making invention the "Handi-Cube." As many as 108 ice cubes are made available for immediate use. When frozen, the cubes automatically drop into a transparent ice bin where they remain dry and separated.

Two "Swing 'n Serve" trays and crisper swing clear of the refrigerator interior. Both trays and crisper remove for serving, use at the work area, or for cleaning. The trays are made of bright-finish aluminum of a new process.

The Swing 'n Serve crisper, capacity 29 lbs., has a divider which may be removed to accommodate odd sizes or large quantities of vegetables and fruits.

Swing 'n Serve trays and crisper are mounted on die cast



"HANDI-CUBE" ice maker automatically releases and stores 108 separated cubes.

aluminum frames. The frames attach to a grooved steel rod located at the front right corner.

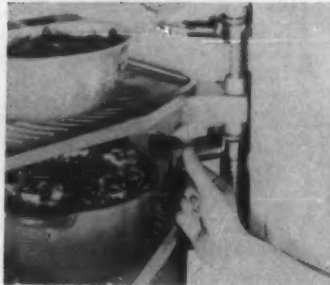
A shelf spacer is combined with the Swing 'n Serve trays. Fully loaded trays can be raised or lowered to new positions by means of a lever. Stacking or shifting of items is reduced by the flexible space feature.

The built-in look, emphasized by new angular design, gives a solid massive appearance to the 1958 line.

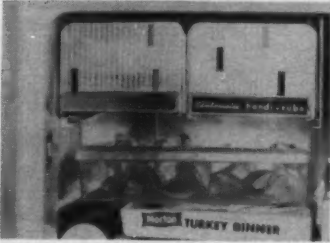
The free form vertical ellipse door handle is chrome plated. It serves as a pull-off type of release while the fixed base provides a pushbutton release. As a safety measure, all doors open easily from the inside.

Model CT-1358 is a two-door 13-cu. ft. automatic refrigerator with a separate true zero-degree 116-lb. capacity freezer compartment. It has 19.6 sq. ft. of shelf area and is 64½ in. high, 31 in. wide, and 27 in. deep.

Features include those described above plus moist cold compartment; meat saver with cover; juice can dispenser and frozen package dispenser—dairy keeper with butter and cheese dishes, egg nest; three double-deep door shelves of which two are adjustable; three interior



SHELF SPACER adjusts shelves in new Norge refrigerator.



REMOVABLE "Swing 'n Serve" shelves are feature of 1958 Norge refrigerator.

lights; automatic defrost; and deluxe trim.

Model C-1358 is a single door 13-cu. ft. refrigerator with an 81-lb. capacity freezer. Shelf area is 19.7 sq. ft.

It has the same features as its two-door counterpart except the juice and frozen package dispensers. Door contains five shelves, two of which are adjustable.

Model C-1158 is an automatic refrigerator with 11 cu. ft. of storage area including a freezer chest with 63-lb. capacity. Shelf area totals 17 sq. ft. A slide-out crisper has 32-lb. capacity.

Three inches narrower than the 13-cu. ft. model, it has many of the same features except the new ones.

Model D-1158 is a budget priced 11-cu. ft. refrigerator with 61 lbs. frozen storage capacity. Shelf area totals 16.7 sq. ft.

Features are: deep 32-lb. slide-out crisper; tall bottle space; three double-deep door shelves; dairy keeper with butter dish; special package shelf; egg nest shelf; and interior light.

Model D-858 offers 8½ cu. ft. total storage capacity with 46-lb. storage capacity. Shelf area is 12 sq. ft. Dimensions: height, 56 in.; width, 23½ in.; depth, 26 in.

Interior finish of all models is in new arctic mist blue color styling. Bright finishes are chrome. The exterior cabinet finish is baked enamel.

A five-year protection plan includes one-year refrigerator-freezer warranty and additional four-year warranty on sealed-in system.

Manufacturer's suggested list prices are:

Model No.	List
CT-1358	\$529.95
C-1358	469.95
C-1158	369.95
D-1158	249.95
D-858	None



"SQUARE-LOOK" 16-cu. ft. Amana freezer-plus-refrigerator for 1958.



NEW Amana "Deepfreeze" DFU-17 upright freezer holds 595 lbs. of food.

Amana's Square-Styling Offers Built-In Look In Two '58 Lines

AMANA, Iowa—A "square look" 16-cu. ft. freezer-plus-refrigerator and a 17-cu. ft. "Deepfreeze" upright freezer with straight-line styling for the built-in look are new in Amana Refrigeration, Inc.'s 1958 freezer and freezer-plus-refrigerator lines announced recently.

For 1958 the company is also offering 13.8 and 17.8-cu. ft. freezer-plus-refrigerators with rounded corners; 12.4, 15.4, 19.6, and 25-cu. ft. "Amana" upright freezers; and 9.3, 15.7, and 22.1-cu. ft. Deepfreeze chest freezers.

The new two-door refrigerator and freezer has an 8.7-cu. ft. refrigerator on top and 7.5-cu. ft. freezer below. Refrigerator compartment features slide out shelves, meat tray, vegetable crisper, bottled storage shelf and tray; and, on the door, bottle tray, butter keeper, cheese and egg keeper, and fruit freshener.

Every shelf in the freezer compartment is a sharp freeze shelf with freezing coils also in top and bottom. "Stor-Mor" door has three vertical areas for food packages, frozen juice bar for 20 cans, and left-over shelf with five plastic containers.

All freezer-plus-refrigerator models, as well as the upright

freezers, are equipped with a new "Soft-Lok" mechanism on the door and burstable latch.

The other two freezer-plus-refrigerator models offer the same features of the new one. They also have radiant rather than fin-type condensers, and interior trim of beige and rose. Freezer compartment doors are opened by foot pedal.

In the Amana freezer line, the models 15 and 19 feature Stor-Mor doors lined with gravity fed storage racks, left-over containers, juice bar, and ice cream compartment.

All units except model 12, contain a two-way light in the door which illuminates both shelves and door.

The new deepfreeze upright contains four aluminum shelves with coils brazed to them. Additional freezing coils are in top and bottom of cabinet. The unit, measuring 32 in. wide, 69 in. high, and 27¼ in. deep, holds 595 lbs. of food.

The three chest models are equipped with food baskets, dividers, and safety light. They employ a radiant condenser with the cabinet outer shell serving as the heat removing medium.

Model DF-220 has four baskets and three dividers, while the model DF-160 has three baskets and two dividers.

A NEW Development from

AUTO-LITE

INKLESS TEMPERATURE RECORDER!

The newest advance in temperature recording... Auto-Lite model 2200 operates completely without ink. It simplifies temperature recording for most processing operations.

- 2 small mercury batteries in case energize transistor oscillator connected to stylus arm.
- Stylus records temperature on 6" evenly calibrated sensitized chart.
- Battery life approximates 2000 hours.
- Records operating temperatures for 24-hour or 7-day cycles.
- Easily serviced—minimum maintenance.

THE ELECTRIC AUTO-LITE COMPANY
INDUSTRIAL THERMOMETER DIVISION
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO

Electric or mechanical chart drive available for either 24-hr. or 7-day rotation. In wall mounting, portable and self-contained type cases. Remote reading with capillary tubing. Temperature charts in ranges from -40°F to +550°F. Write for further information.

TEMPERATURE RECORDERS & INDICATORS

the in LIQUID EYE®

POSITIVE SEALING INDICATORS
... your sign of DEPENDABILITY and QUALITY
USE IT WITH CONFIDENCE

- Pyrex glass, double pressure sealed at sides and ends.
- Positive check of refrigerant condition.
- Unrestricted full line flow.
- Spring-loaded gaskets insure positive seal against leakage.
- Guaranteed to 500 psi.
- Precision made.

USED BY LEADING MANUFACTURERS ON ORIGINAL EQUIPMENT
Sold by leading wholesalers everywhere
Write today for Catalog 8-57 covering the complete Allin line



ALLIN MANUFACTURING CO.
410 N. Hermitage Ave. • Chicago 22, Illinois
Over 1,000,000 Liquid Eyes Sold to Date!



Illustrated: 200 Series, ½" or ¾" female by male flare

We're Specialists In

Refrigeration

Air Conditioning

Electric Motors, Tool

SAVE MONEY.
time, effort by ordering from this complete catalog

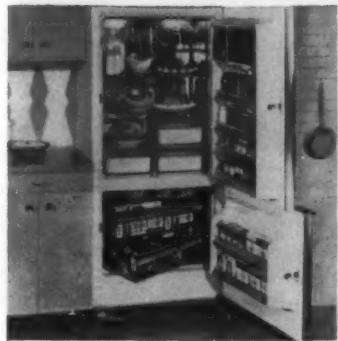
PARTS and SUPPLIES

Over 10,000 items...most complete list in the world... carried in stock! You'll find them all in the NEW Harry Alter Dependabook No. 167 for Fall-Winter, 1957-58. Write on your letterhead for the DEPENDABOOK

WHOLESALE ONLY
The HARRY ALTER CO., Inc. Chicago 16, Ill. 1717 S. Wabash Ave. New York 13, N. Y. 134 Lafayette St. Dallas 7, Tex. 122 Parkhouse St. Atlanta 10, Ga. 890 Stewart Ave., S.W.
FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG HOUSES

What's New In Household Refrigerators

Flat-Backed Built-In Construction Highlighted In '58 Admiral Line



THIS refrigerator-freezer, model M1695, is highlight of 1958 Admiral line.

CHICAGO—Admiral Corp.'s seven-model 1958 refrigerator line is highlighted by a new stylized "built-in look" to all models, the firm announced.

"Auto-Defrost" and "Dual-Temp" combination units have flat-back built-in construction without exterior coils. Built-in construction permits flush-to-wall and flush-to-cabinet installation without remodeling expense, the company pointed out.

DOORS HAVE 150° STOP

Doors on all refrigerators have a 150° stop and swing "within themselves" to prevent marring walls and cabinets.

Included in the line are 10.8 and 12.6-cu. ft. "Deluxe" models, 10.8 and 12.6-cu. ft. Auto-Defrost units, and 13.5, 13.8, and 15.8-cu. ft. Dual-Temp refrigerator-freezers.

In addition, Admiral offers four upright and four chest-type freezers which feature a dotted "Fashion Front" pattern and glacier blue interiors.

Uprights come in two 10.6-cu. ft. units, one 14.8, and a 16.8 size. Chest freezers include 13.1, two 17.1, and 20.2-cu. ft. models. They also have the built-in look.

Along with redesigning the '58 refrigerator line in two fashion fronts across part of the door—either anodized brushed satin panel or regular dotted pattern—new work-saving devices have been incorporated, Admiral explained.

DUAL-TEMP FEATURES

Dual-Temps feature full-width lighting in fresh food compartment and "Magic Ray" lamp which is claimed to prevent food from trading flavors. Aluminum "Humid-Cold-Plate" in the same section is increased in size to maintain high humidity. Model M1695 has an oversize one.

Shelves glide out on nylon glides, it was added. A removable half-shelf is featured in most models.

Freezer compartment in "Up-side-Down" Dual-Temps features a full-width freezing shelf, and models have new twin "swing out" frozen food storage baskets, specially braced, and removable for bulk storage.

Full-width freezer chest and drawer in Auto-Defrost and Deluxe models hold 62 lbs. of frozen food. Aluminum freezer chest is fully enclosed.

New sponge rubber filled vinyl gasket is used on outside doors of all '58 models. "Touch-O-Magic" safety door handle is another feature.

ADMIRAL 1958 REFRIGERATORS

Model No.	Size (cu. ft.)	Suggested Retail Price
C-1144*	10.8	\$299.95
CA-1155†	10.8	\$49.95
C-1344*	12.6	\$299.95
CA-1355†	12.6	\$69.95
M-1475‡	13.5	\$299.95
M-1495§	13.8	\$59.95
M-1695§	15.8	\$49.95

*Deluxe.
†Auto-Defrost.
‡Two-door Dual-Temp.
§Two-door Upside-Down Dual-Temp.

FREEZERS

V114 upright	10.6	\$289.95
V115 upright	10.6	\$299.95
V154 upright	14.8	\$299.95
V174 upright	16.8	\$459.95
H134 chest	13.1	\$349.95
H174 chest	17.1	\$409.95
H175 chest	17.1	\$409.95
H205 chest	20.2	\$549.95

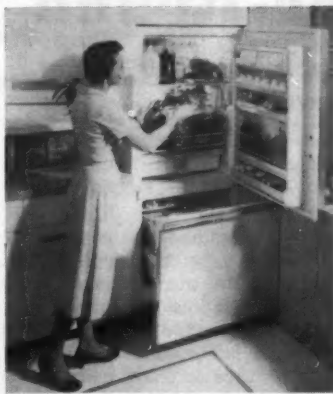
G-E Eliminates Condenser Coil In Cabinet Back For Flush Fit

LOUISVILLE, Ky. — The new "Straightline" refrigerator-freezers with built-in look which eliminates condenser coils in the back and permits the unit to line up with other cabinets are being offered by General Electric Co. for 1958.

Air is circulated through a forced draft ventilation grille in the front of the unit. "Magic corner" hinges in the door permit it to be fully opened.

Magnetic safety door helps protect children from danger.

Seven models comprise the 1958 refrigerator line. Combination refrigerator-freezer BH-15R with 15 cu. ft. of which 10 are in the refrigerator and five in the roll-out drawer freezer and BH-13R, a 13.5-cu. ft. unit of 10-cu. ft. refrigerator and 3.5-cu. ft. roll-out drawer freezer



NEW '58 G-E "Straightline" refrigerator-freezers have no coils on back.

that puts all foods at fingertip.

Included are: foot pedal for opening refrigerator door; revolving shelves to bring the back around to the front;

shelves which adjust to the press of a button even when fully loaded; revolving removable vegetable bins which swing out in front; and roll-out freezer which makes foods easy to get at. The 15-cu. ft. model includes four new ice ejector trays with ice cube storage container. Two compartments are removable. Freezer section holds 175 lbs. of frozen food. The 3.5-cu. ft. freezer in the other unit stores 123 lbs.

Other combination is an 11.5-cu. ft. two-door model with 9.4-cu. ft. refrigerator and 2.1-cu. ft. freezer at top.

Wall refrigerator, LW-11P, is a 10.7-cu. ft. unit of which 8.7 cu. ft. is refrigerator and 2 cu. ft. freezer.

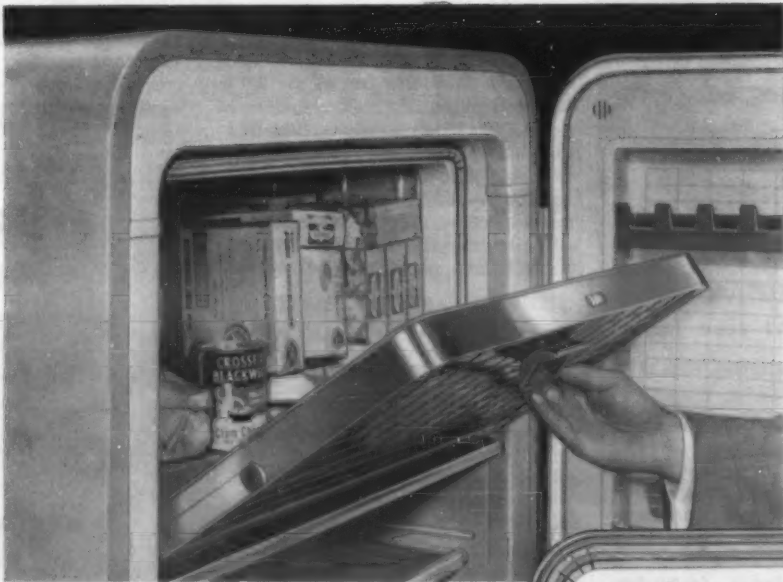
Single door refrigerators with conventional condenser coils at back come in three models. LK-11R is an 11.4-cu. ft. unit with 9.4-cu. ft. automatic defrost refrigerator and 2-cu. ft. freezer.

Rubatex Gaskets meet special Kelvinator requirements

Rubatex closed cellular structure gives Kelvinator engineers just what they want . . .

"a non-moisture absorbing material . . . one that has sufficient resiliency to permit a firm, quiet door closure . . . plus a gasket that can be depended upon for a tight effective seal against loss of cold and entry of warm, humid air."

In addition to these important features, Kelvinator engineers also use Rubatex because it is convenient to work with and easy to apply in the assembly process.



Used as freezer door gasketing in '57 line — continued in Kelvinator '58 line

The principal application of RUBATEX in Kelvinator's combination refrigerator-freezer is a continuous gasket completely surrounding the freezer opening, on top, bottom and both sides.

This is a Closed Cellular Rubatex stock (No. G-251-C) especially developed in a light gray to give a fresh look and to blend beautifully with the metal door.

Rubatex Division, Dept. AC-3
Great American Industries, Inc.
Bedford, Virginia

Just fill out and mail for free sample and more information about Rubatex Closed Cellular Rubber Gasketing.

Name _____

Company _____

Address _____

Air Distribution Requirements In Year-Round Air Conditioning

14. Fundamentals of Conditioned Air (Cont.)

By Frank D. Klein, Chief Engineer, Governair Corp.

In the previous instalments leading up to the application of Psychrometric Analysis of air atmospheres, it was pointed out that the air conditioning engineer is faced with many psychrometric and aerodynamic properties and problems. These generally fall into eight categories: (1) Heating, (2) Cooling, (3) Dehumidification, (4) Heating and Dehumidification, (5) Heating and Humidification, (6) Cooling and Dehumidification, (7) Cooling and Humidification, and (8) Ventilation and Abstraction of Physical Substances (Filtration).

In order to establish some sort of chronology here let us examine these processes psychrometrically in this order when possible. While there may be some disagreement with inserting the psychrometric analytical processes at this point prior to the understanding of the processes themselves, in actuality there is little choice in the chronology of presentation.

THE PROCESS OF HEATING AIR ATMOSPHERES

From previous investigations it was determined that if an air atmosphere is heated in which there is no water present, its Dewpoint Temperature will remain constant. The heat thus involved in such a process involves only Sensible Heat. There-

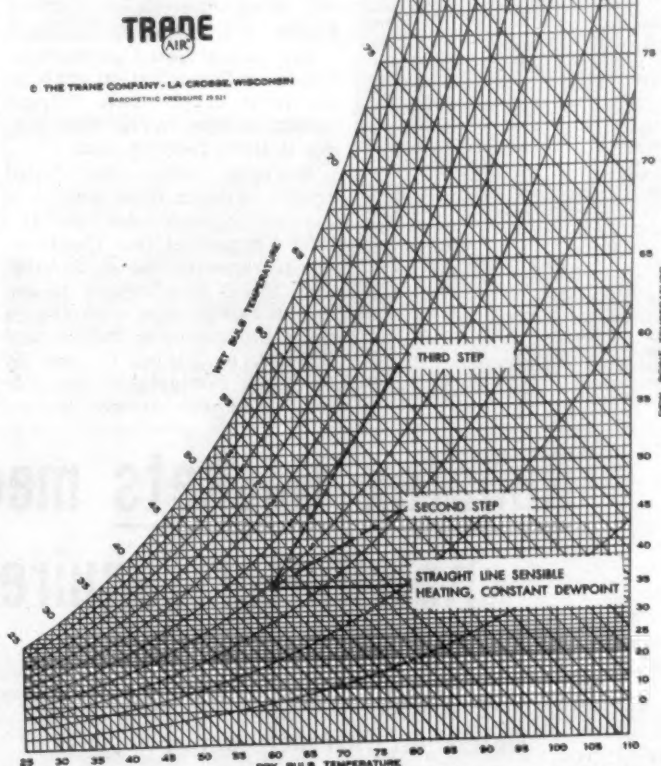
fore psychrometrically it becomes a straight line function on the Psychrometric Chart. Refer to Fig. 7.

Let us assume that we involve ourselves in such a process and have an air atmosphere whose temperature is 60° F. and through sensible heat its temperature is raised to 78° F. We merely have to draw a line from left to right on the chart horizontally from the point at 60° to 78° on any given horizontal Dewpoint line to determine that the Dewpoint originally found in the air remains the same.

For instance in drawing this line let us assume that the air atmosphere at its original temperature of 60° had a Dewpoint of 35°. Therefore, from a standpoint of a practical example, we have air in a home having an original temperature of 60° F. Dry Bulb and we pass this air over the heat exchanger of a warm air furnace, transporting it via the blower equipment and the heat exchanger, adding sensible heat only to the air, raises the Dry Bulb Temperature to 78°.

Now at this point although we note that the Dewpoint of the air remains constant, and we have added no moisture to the air we do have a corresponding change in the Wet Bulb Temperature.

FIG. 7—Heating with humidification and proceeding in steps from sensible heating to heating with humidification.



Refer once again to the line drawn along the line of 35° Dewpoint; at that point of 60° you will find that the corresponding Wet Bulb temperature at the Dry Bulb given is approximately 48°. The Wet Bulb has raised to approximately 55.5°, yet the Dewpoint has remained constant. Remember this is a categorical example only and is true only when an air atmosphere is heated along a line of constant dewpoint.

THE PROCESS OF COOLING AIR ATMOSPHERES

Conversely consider the above example in reverse as applicable to a cooling cycle, and bearing in mind that the air is cooled along the line of Constant Dewpoint, that is, condensation is not allowed to take place and Sensible Heat only is removed by the cooling process, the reverse process merely takes form of following the line from right to left instead of left to right.

THE PROCESS OF HEATING AIR ATMOSPHERES AND INTRODUCING HUMIDIFICATION

In the process of heating air atmospheres and introducing humidification, the 60° atmosphere will be heated in the presence of moisture or water, this latter being accomplished by adding water vapor to the original air by a Humidifier in the warm air furnace, after bringing the original air into contact with the Heat Exchanger.

It will not be possible at this point in explaining the psychrometric changes, to explain the constancy or inconstancy of the points between O° and F°, as the design and operation of such humidification equipment has everything to do with the distance between these two points. This will be explained in later instalments.

point has been raised to 45°.

Now check the Percentage of Humidity lines. The original condition of 60° DB, 48° WB, and 35° DP indicated a Percentage of Humidity condition as approximately 39%. In the heating process and by adding moisture to the air the psychrometric properties of the air leaving the heating apparatus were changed to 78° DB, 59° WB, 45° DP, but with a Percentage of Humidity condition of 30%. In other words moisture has been added to the leaving air, yet the Percentage of Humidity has been lowered, with the final Dry Bulb remaining constant.

Let us then adopt the psychrometric conditions dictating the Physiological Index of Comfort and accept it as say 78° DB, 65° WB. By referring to Fig. 7 and drawing a line from the original 60° DB, 48° WB to the desired Index of Comfort it will be found by keeping the same Dry Bulb conditions, but raising the Wet Bulb temperature to 58°, but most important of all the Percentage of Humidity is raised.

The above instances illustrate a start from pure Sensible Heating through two stages of adding moisture or water vapor to the heated air, resulting in bridging the intermediate point where the starting, original heating process, involving Sensible Heat only, resulted in a reduction of the Percentage of Humidity (39% to 21%) over initial air atmosphere conditions.

Then by introducing water vapor into the heated (sensible) air the same Dry Bulb temperature was maintained, but both the Wet Bulb and the Percentage of Humidity were raised, not withstanding the Dewpoint temperature.

In the third and last stage, adapting a condition more nearly normal to the Physiological Index of Comfort, we kept the same Dry Bulb, raised the Wet Bulb, the Percentage of Humidity and the Dewpoint over and above that point in Percentage of Humidity that existed in the original air.

(To Be Continued)

Custom Engineered

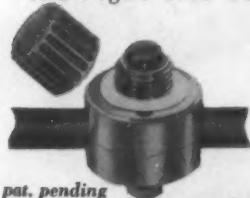
for your specific application



WATSCO LINE TAP VALVES

RANGE FROM 3/16" to 5/8" INCLUSIVE

the right size valve for the right size job



pat. pending

CV-1
CONTROL
VALVE

Alltime tool designed expressly for Watsco Line Tap, Can Tap and Line Port Valves.

EACH JOB A CUSTOM INSTALLATION. EACH VALVE THE SAME LOW PRICE.

Small and compact, Watsco tapping valves are easily installed... Handy inexpensive ports for charging, discharging and testing open and hermetically sealed units... No top heavy assembly... Will not loosen or leak due to vibrations... Will not crimp tubing.

Part No.	For O.D. Tube	Part No.	For O.D. Tube
LT-3	3/16"	LT-6	3/8"
LT-4	1/4"	LT-8	1/2"
LT-5	5/16"	LT-10	5/8"

Watsco line tap valves offer maximum protection with exclusive "3 point sealing."

For complete information, send for 1958 catalog.

WATSCO

INC.

1020 EAST 15th STREET, HIALEAH, FLORIDA.

Heat-Cel

LOW
TEMPERATURE
DEFROST SYSTEM

DESIGNED BY
SPECIALISTS
IN THE LOW
TEMPERATURE FIELD!

**FAST HEAT TRANSFER!
QUICKER DEFROSTING!**
Low wattage electrical element provides positive heat for re-evaporation regardless of ambient.

DOLE REFRIGERATING COMPANY

5920 N. PULASKI RD., CHICAGO 30, ILL.
103 PARK AVE., NEW YORK 17, N. Y.
Canada: Dole Refrigerating Products Limited
44 Elgin Street, Brantford, Ontario

WRITE FOR
ENGINEERING
CATALOG
DDE

DOLE
REFRIGERATING
PRODUCTS LIMITED

Flexible Heating, Cooling Meets Plant Needs

70 Air Conditioning Units Allow for Adaptation To Firm's Future Needs



Horizontal air handling units, installed suspended from the ceiling, furnish the air conditioning for the manufacturing and completed goods areas in the Bostitch Co. staple manufacturing plant. Ceiling suspended units leave more floor space for production equipment and production operations.

E. GREENWICH, R. I.—The new Bostitch staple plant here, which encompasses over 400,000 sq. ft., has been cited as "outstanding example of the use which is being made of modern flexible heating and cooling methods — effectively meeting today's demands and adaptable to those of tomorrow."

The building is described as "a highly successful integration of structure, function, and enclosure. It is constructed to serve an industry, to please management and employees alike, and to express a confident, realistic attitude toward future development."

Management, architects, engineers, and contractors united to fulfill the requirements for an efficient arrangement for the manufacturing process, balanced distribution of architectural elements, and "controlled" atmos-

pheric comfort the year around, it was pointed out.

Charles T. Main, Inc., Boston, was consulting engineer. Charles P. Blouin, Inc., Cambridge, Mass., heating and ventilating contractor, handled the sheet metal work.

Working together, these organizations provided a modern addition to an old New England landscape with a highly efficient heating and cooling system, it was stated.

Within this plant there are installed more than 70 Dunham-Bush heating and cooling units, compressors, and heat exchangers.

5 SYSTEMS HEAT, COOL STAPLING DEPT.

The Stapling Dept. is completely heated and air conditioned by five individual systems, each system comprised of several Dunham-Bush units.

System No. 1 consists of a Brunner 100-hp. compressor, a Dunham-Bush HAH 180, and an HAH 120 air handling unit. The equipment in Systems No. 2, No. 3, and No. 4 is identical, each system having a Brunner 100-hp. compressor connected to an HAH 240 and an HAH 120 air handling unit.

Additionally, each system has a Dunham-Bush IEC 90 evaporative condenser, a Heat-X muffler, and a Heat-X 85RX heat exchanger. System No. 5 has a Brunner 100-hp. compres-

sor connected to an HAH 180 and an HAH 120 air handling unit. Of horizontal design, the HAH units (Horizontal Air Handler) are installed suspended from the ceiling, leaving more floor space for production or other equipment.

Executive offices are air conditioned with a Brunner 75-hp. compressor, a Dunham-Bush MZ 100 and a MZ 240 multizone air handling units, and a 75-ton evaporative condenser.

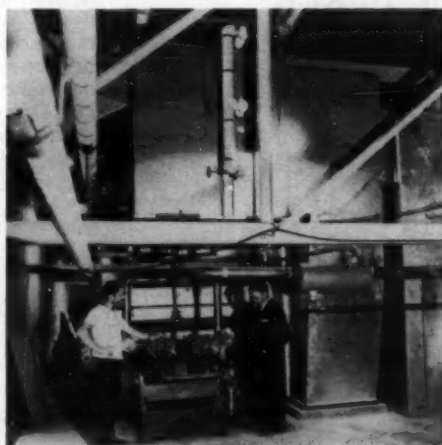
Proper atmospheric conditions in the Engineering and Drafting Dept. are provided by a Brunner 75-hp. compressor, two HAH 120 air handling units, and a 75-ton evaporative condenser.

In the cafeteria, employees eat in air conditioned comfort created by a 75-hp. compressor operating at 50% capacity on an HAH 120 air handling unit.

SUPPLEMENTAL HEAT

In the receiving area there are Dunham-Bush blow-down unit heaters installed at each of the 14 large doors leading in from the outside. The heaters provide supplemental heat during the cold months when, because the doors constantly are being opened and closed, a good deal of cold air moves into this part of the building.

The main manufacturing space, which contains the largest single area, is serviced by 24 Dunham-Bush HAH 240 air handling units with two row steam coils. These units were furnished completely insulated and laid out so that DX coils may be installed at some time in the future, permitting periodic air conditioning of other areas.



Fan Noise Rating Method Proposed

PITTSBURGH — With noise becoming an increasingly important consideration in air conditioning and ventilation system design, engineers may soon have data for evaluating noise produced by a fan, it was indicated in a technical paper presented at the 64th annual meeting of the American Society of Heating & Air-Conditioning Engineers here.

A suggested method of relating sound laws to fan laws was presented by R. D. Madison, consulting engineer, and J. B. Graham, director of research for Buffalo Forge Co.

Sound power level produced by a fan, they said, is related to the quantity of air flowing through the wheel, static pressure, fan size, and speed with the lowest sound power occurring near the point of maximum fan efficiency.

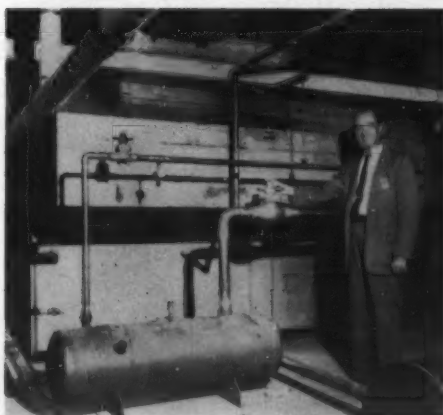
Incidentally, the authors cautioned engineers that the numerical values of "sound power levels" run higher than the decibel values of "sound pressure levels." The latter concept, they explained, is "now considered to be inadequate for an engineering evaluation of equipment noise."

If the suggested sound rating method were adopted by manufacturers, fan performance tables would have a fifth column showing efficiency rating as related to c.f.m. in addition to the usual outlet velocity, r.p.m., and hp. for various static pressures.

There would also be a typical fan performance curve that would include "specific sound power levels" for the particular fan. This new term is defined as "the power level a similar fan would make when operated at 10,000 c.f.m."

This noise rating method would be limited to the fan itself, the authors emphasized, and therefore would not consider other sources of noise in fan assemblies as unbalance, bearing noise, structural resonance, motor noise, coupling noise, and belt noise.

One of the five 100-hp. Brunner compressors that furnish cooling in the manufacturing area in the Bostitch plant stapling department. Each system has a Dunham-Bush evaporative condenser, a Heat-X muffler, and a Heat-X heat exchanger.



One of the 90-ton Dunham-Bush evaporative condensers that forms part of the Bostitch plant installation at East Greenwich, R. I., is shown off by Charles Cavanagh, Dunham-Bush regional sales manager.

Multizone air handling units furnish air conditioning, including 75 tons of cooling capacity, to the executive offices, cafeteria, engineering, drafting, and general office areas.



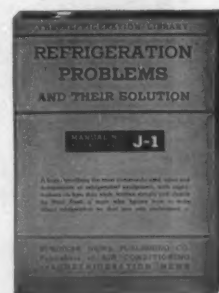
ARE you in need of a "just right" man to fill a slot in your organization—the man you are looking for will be reading the

NEWS' CLASSIFIED ADS

(See Page 36)

REFRIGERATION PROBLEMS AND THEIR SOLUTION by PAUL REED

ONLY \$1⁵⁰ EACH



Make it work! When you're stopped by a tough problem use these practical reference books with a load of factual information about every refrigeration problem you'll meet as a serviceman or salesman. For years Paul Reed has been supplying the answers in his weekly column in AIR CONDITIONING & REFRIGERATION NEWS.

Now this fund of knowledge can be yours in this 5-volume set. Order all now—or one at a time.

BUSINESS NEWS PUBLISHING CO.
450 W. Fort St., Detroit 26, Mich.

2-17-58

Please send Paul Reed's books as follows:

..... copies J-1, \$1.50 each. copies J-2, \$1.50 each.
..... copies J-3, \$1.50 each. copies J-4, \$1.50 each.
..... copies J-5, \$1.50 each.

Check for \$..... enclosed* ☐ Bill me.

Name.....

Address.....

City.....Zone.....State.....

*Books sent post-paid if remittance accompanies order.

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Used Driers (2)

A BOTTLE IN THE CRANKCASE

Whether or not the serviceman chooses to conduct chemical tests, many reputable companies agree that it would be a good thing if he did open several driers and examine them visually. For this purpose, a magnifying glass is convenient and inexpensive. With such a glass, he can often determine what solid matter is present on the drier's filtering element, and this, in turn, can tell him if he needs take some corrective action or if he should investigate further.

One manufacturer received a drier which had plugged. The case history stated that the open-type compressor seemed to drag and bind at erratic intervals.

A magnified visual inspection of the material caught on the drier's filtering element showed glass to be present—in fact the glass was the familiar greenish color of one of America's popular soft drinks.

Because glass had never been found in a drier before, a more positive test was conducted to verify the visual inspection. The serviceman was notified that his system had glass in the system.

After his first reaction of natural doubt about the lab tests, the serviceman agreed to dismantle the compressor. In the crankcase, he found broken portions of a pop bottle. Obviously, the bottle was being knocked about, occasionally breaking into pieces small

enough to pass alongside the piston and through the discharge valve. This accounted for the occasional sluggish action of the compressor and for the scoring of the piston and cylinder wall.

To this day, no one knows how the bottle fragment got in the crankcase, but the compressor was a rebuilt standby which had been in the shop for months between uses, so anything could have happened.

The point is, however, that it was the examination of a used drier which showed this.

Incidentally, all of the drier manufacturers agree also that whenever a drier is returned, as full a case history as possible should be sent along with it. The size of the unit, the operating characteristics, any unusual design features of the system.

Unfortunately, many servicemen feel that if they tell the manufacturer anything, they

may give the manufacturer an "out." Such servicemen feel that the tests are more unbiased and fair if the lab knows nothing about the unit from which the drier came.

This is bad logic; it's like going to the doctor and telling him you feel bad, then letting him "earn his pay" by not telling him your symptoms.

IMPURITIES OFTEN FOUND

It is, of course, unlikely that the serviceman will find glass in a drier, but among other more common foreign material found are pieces of wood, lint, paper (these last two apparently remnants of makeshift plugs used to keep tubing clean or to keep impurities out of openings in an idle compressor), pieces of wire, and plastic.

All of these things are the type which must have been placed in the unit during installation or repair; they are not the sort of impurity which might

occur during normal operation of a system.

Here are several items which are frequently found in used driers.

Oil—both clean and carbonized
Sludges—both oil sludge and plain dirt

Alcohol
Leak detectors, internal type
Acids and chemical compounds

Copper oxide
Rust
Metal scrapings, filings, scorings

Sand, grit.
In some cases, the very presence of these substances might be cause for concern; in other cases small amounts are normal and there is cause for concern only if there are large amounts.

(To Be Continued)

Technical Institute Formed In Mid-South

BIRMINGHAM, Ala. — Formation of the Mid-South Technical Institute offering basic and advanced training in the air conditioning, refrigeration, electronics, and electrical fields was announced here recently.

The institute has taken over facilities and staff of the Commercial Trades Institute, a private organization, and the new institution will operate on a non-profit basis under the direction of a board of trustees composed of 25 Alabama businessmen, it was explained.

J. Hill Foster, who formerly operated Commercial Trades Institute, has been named to the presidency of the new organization. On the executive committee are J. Morgan Smith, chairman, James A. Simpson, Charles H. Moses, Dr. John Hillhouse, and John B. Rudolph.

Charles H. Moses, Jr. has been named treasurer and Miss Elizabeth Peacock, assistant treasurer and secretary.

Board of trustees includes B. Roper Dial, George A. Mattison, Jr., Fred Shackelford, Harry Brock, Jr., Sanders Rowland, Robert Schlinkert, Robert L. Stevens, John DeBuys, Dr. Ruric E. Wheeler, all of Birmingham, and Col. Everette Jackson, of Montgomery.

The school is housed at 5601 First Ave., North, in Birmingham, and is now operating with an enrolment of 105 students.

Commercial Trades Institute was organized here in 1944 and has graduated more than 3,000 students, some of whom occupy high positions in their respective professions, according to the announcement.

The board of the Mid-South Institute will undertake an immediate expansion program to bring the student body to a peak limit of 200 students. The board announced a campaign to raise \$100,000.

PICK A WINNER!

PARTICIPATE IN THE FASTEST GROWING
TRADE SHOW IN THE 11 WESTERN STATES



EXHIBITORS...

this will be a selling show. Quality prospects will attend from the Nation's fastest growing market—the 11 Western States. Top-level industry personnel will be attracted to the well-integrated technical program and display.

CONSULTING ENGINEERS, ARCHITECTS, CONTRACTORS,
FEDERAL, STATE, COUNTY AND CITY OFFICIALS,
RESTAURANT OWNERS, HOTEL AND MOTEL OPERATORS,
OPERATORS OF APARTMENT OR OFFICE BUILDINGS, STORE
MANAGEMENT AND INDUSTRIAL PLANT MANAGEMENT.

Come... See and talk to manufacturers and their representatives
...compare the latest advances in Air Conditioning, Heating,
Ventilating and Refrigeration equipment and accessories.

Take advantage of the excellent program of technical sessions.

**After 1958, this Exhibit will be presented biennially
SO...DON'T MISS THIS WINNER FOR 1958**

For space reservations or other information, write or phone:

Fred J. Tabery, Exhibit Manager
Western Air Conditioning Industries Association
3443 South Hill Street, Los Angeles 7, California
Richmond 9-1091

Looking for
a Business to Buy . . . ?
Check the
Business Opportunities
Section
in the classified
advertising columns.

**COMING
MARCH
10:**

**THE AIR CONDITIONING
"SHOW CASE" ISSUE
OF
AIR CONDITIONING
& REFRIGERATION NEWS**

Order Your Extra Copies of "Show Case" Today!

1-9 extra copies: . . . \$1.00 each
10-49 extra copies:75 each
50 or more copies:50 each

**MARCH 10
IN THE
NEWS
SEE AND
COMPARE
1958
AIR
CONDITIONERS!**

The "Show Case" issue will bring you unparalleled news coverage in the air conditioning field. Edited for constant reference throughout the year, your March 10 "Show Case" issue will include dramatic, detailed market analyses, new air conditioning applications, tested sales methods, as well as details from manufacturers about the features of and plans for their new lines. This penetrating coverage of the air conditioning market will give you the factual assistance needed to make buying decisions.

Your March 10 "Show Case" issue will include also the most sought-after specifications ever published . . . specifications on *all* makes and models of 1958 packaged air conditioners (from window units to residential add-on units to large commercial packaged equipment). You and your key air conditioning men will want to keep this easy-to-read, easy-to-keep Specifications Section handy for constant reference.

Because they want to influence you—responsive, action-taking dealers, manufacturers, distributors, and contractors—more manufacturers than ever before will exhibit their products and services in the "Show Case" issue. This advertising, prominently and colorfully displayed . . . in the largest air conditioning showcase ever assembled, will keep best-buying people "in-the-know," and thus, round out the *full* air conditioning story.

**ATTENTION ADVERTISERS: RESERVE YOUR EXTRA "SHOW CASE"
SPACE NOW! FORMS CLOSE FEBRUARY 26**

**AIR CONDITIONING
& REFRIGERATION**

The Newspaper of the Industry



NEWS

450 West Fort Street, Detroit 26, Michigan

THE NEWSPAPER THAT CARRIES MORE ADVERTISING
BY FAR THAN ANY OTHER PUBLICATION IN THE FIELD.

NEW YORK, 33 FIFTH AVE.
MURRAY HILL 3-1232
ROBERT M. PRICE

CHICAGO, 134 E. LA SALLE ST.
FRANKLIN 3-8884
ALLEN SCHILDHAMMER

LOS ANGELES, 4710 CRENSHAW BLVD.
AXMINSTER 3-8884
JUSTIN HANNON

DETROIT, 451 WEST FORT ST.
WOODWARD 3-8884
J. R. SULLIVAN

Changes In ME-13 Detailed, Explained

Recognizes Industry Standards, Building Practices In Home Conditioning; Will Be Included In Minimum Property Standards Barring Need for Bulletin

WASHINGTON, D. C.—Purpose of the recently issued ME-13-A, a revision of ME-13, is to recognize current industry standards and building practices in our minimum requirements concerning residential air conditioning, Neil A. Connor, director of the Federal Housing Administration's architectural standards division, declared.

He said these requirements, or later revisions, will be incorporated in the proposed Minimum Property Standards, thus eliminating the need for a mechanical engineering bulletin containing requirements on air conditioning.

Explanation of Changes

For information and guidance, he gave the following explanation of the changes made (see accompanying text):

1. Paragraph 2-c of ME-13-A has been added to indicate those items in the requirements which are not applicable in those cases where room air conditioners are proposed.

Letter No. 1682, dated Aug. 8, 1957, to All Directors removed prohibitions against including "air cooling units of the console and window-types" (room air conditioners) in lists of Easily Removable Real Estate Items. Concurrently, ME-12

was revised to remove similar restrictions.

It is the intent of Paragraph 2-c of ME-13-A to indicate that single or multiple installations of room air conditioners in windows, walls, or as consoles, may be considered eligible where acceptable to the mortgagee and otherwise determined suitable by the FHA Insuring Office.

2. Paragraph 2-c(3) of ME-13 has been revised as 2-d(3) in ME-13-A to include ASRE Standard 16-56 as well as the applicable ARI Standard. This does not change the method or standard of rating unit capacities.

3. Questions have been raised on the meaning of Paragraph 2-d(4) of ME-13 regarding capacity and KW input at local design conditions.

Basis of Comparison

The rating obtained under Paragraph 2-d(3) of ME-13-A is at "standard" conditions and serves as a basis for comparing the performance of different units under such conditions. However, the capacity and input to air conditioners (particularly air to air units) varies with the outside dry and wet-bulb temperatures.

Manufacturers have indicated that performance curves or

tabulated data are, or will be made, available from which the capacity of units at temperatures other than "standard" can be determined.

4. In Paragraph 3 of ME-13 the wording "shall be sufficient to maintain inside design conditions etc." represents a performance condition that should exist after commitment and which would be difficult to demonstrate or enforce. This part of Paragraph 3 has been deleted in ME-13-A.

5. Paragraph 4-b of ME-13 has been separated into Paragraphs 4-b and 4-c in ME-13-A. An exception has been made to use a 20° F. differential in design dry-bulb temperatures in areas where design temperatures exceed 100° F.

6. A sentence has been added to Paragraph 5-b of ME-13 requiring the use of dielectric connectors in cooling water circuits to prevent electrolytic corrosion.

No Accurate Definition

7. The actual need for directional vanes (fixed or adjustable) on supply outlets cannot be determined with certainty for specific installations at time of submission. Also, the phrase "proper distribution" is not subject to accurate definition or application. Due to the indefinite nature of these items it was deemed advisable to delete Paragraph 6-c(1) of ME-13 and rely upon the criteria indicated in industry design standards.

8. Available field data is insufficient to justify the requirement for ground cover in the crawl space of all air conditioned houses. Paragraph 6-g of ME-13 has been deleted.

9. In systems using the same filters and ducts for heating and cooling, filter velocities are regulated by existing standards for heating system design.

A 300 c.f.m. velocity appears too restrictive for the "throw-away" type filters generally used. Permanent type filters now being proposed for some units can tolerate substantially higher velocities.

Industry is now developing performance limits for testing

Printed here is the complete text of the Federal Housing Administration's recently issued Mechanical Engineering Bulletin ME-13-A that relaxes some of the requirements for air conditioning in FHA-insured homes.

To help you see clearly what is new and what has been changed from Bulletin ME-13, which ME-13-A supersedes, we have

1. Put all new or revised material (except section headings) in **boldface type like this**.
2. Put all material that appeared in ME-13 but does not appear in the new ME-13-A (in parentheses like this). Thus the requirements inside the parentheses are no longer in effect.

"throw-away" and permanent type filters which will be referenced in our requirements when available.

In view of this circumstance Paragraph 6-h of ME-13 has been deleted.

**ARCHITECTURAL STANDARDS DIV.
FEDERAL HOUSING
ADMINISTRATION
WASHINGTON 25, D. C.**

**MECHANICAL ENGINEERING
BULLETIN NO. ME-13-A
Jan. 10, 1958
SUPERSEDES
BULLETIN NO. ME-13
Dated Aug. 12, 1957**

SUMMER AIR CONDITIONING REQUIREMENTS WARNING

The technical description, requirements and limitations expressed herein do not constitute an endorsement, approval or acceptance by the Federal

Housing Administration of the subject matter, and any statement or representation, however made, indicating approval or endorsement by the Federal Housing Administration of the subject matter, and any statement or representation however made, indicating approval or endorsement by the Federal Housing Administration is unauthorized and false, and will be considered a violation of the United States Criminal Code 18, U.S.C. 709.

Subject to good workmanship of installation and the conditions of acceptance listed herein, the equipment described in this bulletin may be considered acceptable in the construction of properties otherwise eligible for mortgage insurance under the Minimum Property Requirements of this Administration.

This acceptance applies only to installations herein described and is not to be construed as indicating acceptance of the property as a whole. Many other factors must be considered under the FHA mortgage insurance underwriting procedures. In order to qualify

(Concluded on next page)

WHO'S IT FOR?

It's a Remco Super-Flo filter-drier and it's tagged for:

FORD MOTOR CO.
CHRYSLER
JANITROL
RHEEM
EATON
NOVI
QIRTON
GILSON
AMANA
BRYANT
PRIMOR
UNIFLO
PFADLER
LINTERN
TRANSICOLD
PARKOMAT
FRIGIKAR
LONERGAN
O. A. SUTTON
CLIMATIC AIR



JOHN E. MITCHELL
PERFECTION INDUSTRIES
PAUL MUELLER CO.
KYSOR HEATER
ARMSTRONG-FURNACE
McCORD CORP.
A.R.A. MANUFACTURING
IDEAL COOLER
FEDERAL REFRIGERATOR
SIMPLEX MFG.
D. W. ONAN & SONS
NATIONAL U.S. RADIATOR
AND MANY OTHERS

These manufacturers use Remco because the price is competitive and the product dependable. Add it up: thorough removal of moisture; efficient filtering; negligible pressure-drop. Who's it for?

IF IT'S REMCO-IT'S FOR YOU!

write for Bulletin R-11

REMCO INC.
ZELIENOPLE, PA.

CARRIED IN STOCK BY LEADING WHOLESALEERS EVERYWHERE

**all year
air conditioning**

**Lowest Dealer Net Cost
on Complete System \$59900**

Includes 3 tons of cooling, forced air furnace and controls. Completely wired with service and expansion valve hook-up.

- Weatherproof, Waterless Remote Unit
- Large Condensers

A profitable line to handle — Easily Installed — Easily Serviced. Dealers, Jobbers, Agents write for information

NATCO

P. O. BOX 7464 • HOUSTON, TEXAS

FURNAS ELECTRIC

**CONTROLS HELP YOU REDUCE
COST AND SPACE
REQUIREMENTS**

Magnetic Starters in 10 sizes to 100 hp. Furnas starters for control of high horsepower compressors offer the exclusive Furnas "in-between" size starters with dual voltage magnet coils.

For full information write for Bulletin 5610, 1111 McKee St., Batavia, Ill.

Furnas contactors feature 20, 24, 30, 35, 40, and 50 ampere sizes to match starter requirements. Silver cadmium oxide contacts for longer life. Floating armature insures quiet operation.

FURNAS ELECTRIC COMPANY
BATAVIA, ILLINOIS
SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

Complete ME-13A Text--

(Concluded from preceding page)
as security for an insured mortgage, each property will be individually judged on its own merits.

This bulletin shall remain in force until it is superseded by a revised or new bulletin, or withdrawn. The Architectural Standards Division, Washington, D. C., may undertake review of such bulletins whenever conditions warrant. A revised or new bulletin may be issued on the basis of such reviews, depending upon satisfactory experience with installations in actual use and upon acceptance of any proposed changes.

The minimum requirements contained herein are hereby a part of the Minimum Construction Requirements of all FHA insuring offices.

1. OBJECTIVE

To provide summer air conditioning facilities which are safe, quiet and economical in operation and maintenance for the purpose of controlling temperature, humidity, cleanliness and distribution of air within the conditioned spaces.

2. GENERAL

a. (These standards apply to all equipment and appurtenances installed to provide air conditioning for summer comfort.) Equipment and appurtenances shall be new.

b. These standards are intended to cover mechanical or absorption type refrigeration equipment designed to provide summer air conditioning by either a central system with distribution ducts or piping, or packaged room or sonal air conditioners with free air discharge. They are not intended to cover evaporative or desert-type coolers. (Such systems may be accepted by local insuring offices where suitable conditions prevail.)

c. Paragraphs 2-d-(1), 5-(b through g), and 6-(a through f) are not applicable to room air conditioners designed for installation in windows or walls, or for use as consoles.

d. Exhibits—On separate drawing or as part of heating plan, floor or basement plan:

(1) Layout of system showing location and size of ducts, piping, registers, compressors, coils, etc.; or location, size, number and installation details of room or sonal air conditioners.

(2) Heat gain calculations including estimated heat gain for each space to be conditioned.

(3) The model number, and B.t.u.h. capacity (total sensible and latent) with total KW input to the system at standard rating conditions as listed in ASRE Standard 16-56 or in the applicable ARI Standard.

(4) The B.t.u.h. capacity and the total KW input at stated local design conditions.

3. CAPACITY OF EQUIPMENT

Capacity of equipment at local design conditions shall be not less than the calculated total heat gain when outside design conditions prevail (and shall be sufficient to maintain inside design conditions within the space to be cooled when the outside dry and wet bulb temperatures are at design level).

4. HEAT GAIN CALCULATIONS

a. Calculations shall be made in accordance with the American Society of Heating and Air Conditioning Engineers Guide, Air Conditioning and Refrigeration Institute Standards, the applicable manuals of the National Warm Air Heating and Air Conditioning Association, or other recognized and acceptable methods.

b. Unless established otherwise by the FHA Field Office, outside design conditions shall be the dry and wet bulb temperatures as listed in the ASHAE Guide under "Common Use."

c. Inside design conditions shall not be higher than 80° F. dry bulb and 50% relative humidity except in those areas where design dry bulb temperatures exceed 100° F. in which case a 20° F. differential between outside and inside design temperatures may be used.

5. REFRIGERATION SYSTEM

a. Refrigeration systems and components shall comply with the requirements of the American Standard Safety Code for Mechanical Refrigeration ASA B9.1 (latest edition) and the current applicable standard of the Air-Conditioning and Refrigeration Institute. Refrigerants used shall be non-toxic and noncombustible and shall be approved as a Group 1 refrigerant as classed in ASA B9.1 Code, except that sealed absorption systems may use Group 2 refrigerants when in compliance with this Code.

b. Piping used for conveying condenser cooling water shall be zinc coated, copper, or other corrosion-resistant material. Where condenser cooling water causes excessive corrosion, scaling, or obstruction within the piping or equipment, suitable water-treatment means may be required. Dielectric connectors shall be used between ferrous and nonferrous piping in the cooling water circuit.

c. Cooling coils, except in units specifically tested and listed by U.L. or A.G.A. for location of coil upstream

from furnace heat transfer surface, shall be located so that conditioned air leaving the coil will not pass over the heat transfer surface of any furnace. The cooling coil may be located downstream from the furnace, or the furnace may be completely by-passed during the cooling cycle.

d. All exposed refrigeration piping located less than 6 feet above any floor or outside grade shall be suitably protected to prevent damage to piping or injury to persons.

e. Clearance shall be provided for all construction to permit proper operation, adjustment, replacement and repair of equipment.

f. Suitable means shall be provided for the collection and disposal of condensate from the equipment. The condensate drain shall be at least 1/4 inch nominal pipe size and shall be copper, galvanized steel, or other corrosion-resistant material.

g. Where the cooling coil or air conditioning unit is located above a living space, or where structural damage may result from condensate overflow, an additional watertight pan of corrosion-resistant metal shall be installed beneath the cooling coil or unit to catch overflow condensate due to a clogged drain, or one pan with standing overflow and separate drain may be provided in lieu of the second drain pan. The additional pan, or the stand-

ing overflow, shall be provided with a drain pipe, minimum 1/2 in. nominal pipe size, discharging at a point which can be readily observed. Condensate drains shall not be directly connected to a plumbing drainage system.

6. DISTRIBUTION SYSTEM

a. Duct system shall be designed and installed in accordance with a recognized and acceptable method such as contained in the ASHAE Guide or applicable manuals of the NWAHACA and shall comply with the National Fire Protection Association Pamphlet No. 90-B, except as otherwise provided herein.

b. Return air from any living unit shall not be recirculated and delivered to any other living unit.

c. Balancing devices for volume adjustment shall be provided in each supply duct or supply outlet. (In combined systems where the same ducts are used for heating and cooling:

(1) Supply outlets shall be provided with suitable directional vanes, and where necessary to achieve proper distribution vanes shall be adjustable, and

(2) Supply outlets in bedrooms shall be provided with shutoff dampers.

d. Return air inlets shall be of sufficient numbers and so located that return air from any room will not pass across the normally occupied areas of another room in such manner as to cause objectionable draft. The CFM capacity of return air inlets and ducts

shall be not less than the design CFM capacity of the supply system. Grilles for return air shall be sized so that the velocity of air through free areas will not exceed 500 f.p.m.

e. Supply ducts and supply piping in crawl spaces, unfinished attics, other non-conditioned spaces, and in furred-in spaces adjoining non-conditioned spaces, and, where necessary, other ducts, piping and parts of the distribution system, shall be suitably insulated and covered with a sealed joint vapor barrier on the outside of the insulation. The type and thermal resistance of the insulating materials used shall be commensurate with the conditions of exposure and the local design temperature differences.

f. Distribution systems employing liquid media for cooling shall be designed in accordance with the applicable criteria contained in the ASHAE Guide and shall be capable of producing summer comfort conditions within the concept of this standard.

g. An acceptable water vapor barrier ground cover material shall be provided in the crawl space of any structure in which summer air conditioning is installed.

h. Filters shall be sized to provide not less than 1 sq. ft. of total face area per 300 CFM of air and shall be readily accessible for cleaning or replacement.)

7. NOISE ABATEMENT

a. Suitable and durable means shall be provided to prevent transmission of

objectionable noise or vibration generated by the equipment.

b. As a partial index and guide, the sound level due to operation of the equipment, as measured on the 40 decibel weighted network in the center of conditioned spaces three feet above the floor should not be higher than 45 decibels for a normally furnished room or 50 decibels for an unfurnished room.

8. ELECTRICAL

a. All electrical wiring shall comply with the National Electrical Code.

b. All motors shall be protected in accordance with the Underwriters' Laboratories, Inc., Standards for Air Conditioning Equipment, Subject 308.

c. Manufacturer's wiring diagram shall be furnished for packaged units. Where field built-up or assembled units are installed, a complete wiring diagram shall be submitted.

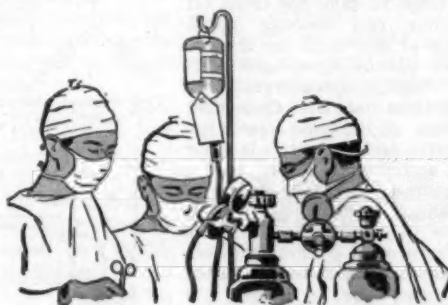
9. GUARANTEE

a. A performance guarantee, including evidence of adequate service facilities, executed by the contractor installing the equipment shall be submitted when required by the FHA field offices.

b. Standard manufacturer's warranty shall be required for all equipment. The contractors shall without charge furnish and install warranty replacement parts and provide service during the first year after installation.

(Signed)

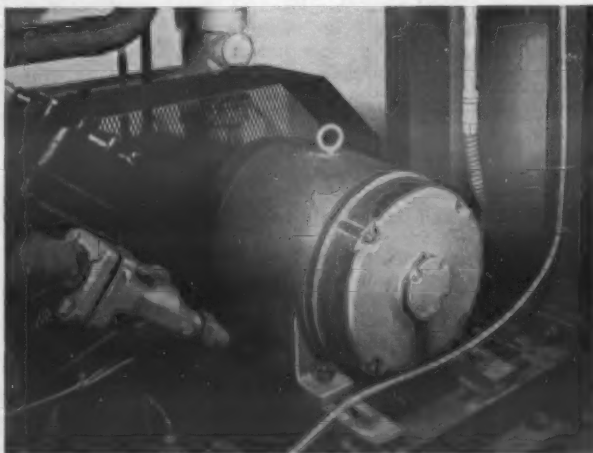
Neil A. Connor, Director
Architectural Standards Div.



**Blood Banks
must
NEVER
FAIL...**



**Vital refrigeration units in St. Louis Blood Bank
are powered by Wagner Motors**



This 30 horsepower Wagner high torque, open type motor drives the refrigeration unit for the blood storage room in the St. Louis Blood Bank.

Wherever there is a motor application of a critical nature—even vital to life itself—Wagner Motors can be relied upon to fulfill their responsibility of completely dependable operation. In St. Louis' Blood Bank, for example, you'll find many Wagner Motors at work—driving the all important refrigeration units that keep the blood at proper storage temperature, that operate air conditioning compressors, that move heated and cooled air to keep the building comfortable in winter and summer.

Whether your motor application is vital to life or not, you can depend on Wagner Motors for efficient, reliable operation.

The complete line includes motors from 1/2 to 600 hp, singlephase or polyphase, in a wide variety of enclosure types and mountings. Let your nearby Wagner Sales Engineer help you select the right motors for your needs. Call the nearest of our 32 branch offices, or write direct.

Support your Local Blood Program by donating blood regularly!



BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

Wagner Electric Corporation
6441 Plymouth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

For more information about products advertised on this page use Information Center, page 22.

Refrigeration Problems And Their Solution

(As Written by Paul Reed)

The late Paul Reed, one of the refrigeration industry's most respected writers and teachers, wrote a column on "Refrigeration Problems and Their Solution" which was published regularly in AIR CONDITIONING & REFRIGERATION NEWS for more than 15 years.

Readers throughout the years have hailed this written material as some of the most practical and helpful that has ever been published. Fortunately, the author had an opportunity to revise some of this material and the NEWS is currently re-publishing it.

Cleaning Drain Pan and Line

A recent inquiry from a reader concerns cleaning the drain pan and drain line in a commercial reach-in refrigerator.

GREASE AND SLIME IN EVAPORATOR DRAIN PAN

"Is there any solution or cleaner which can be used periodically in a reach-in box to keep the grease and slime out of the drain connected to the coil catch pan? We have one here which we have to clean every so often with a wire. It seems that the grease, small pieces of foreign matter, etc., get into this tray (which is on the bottom of the interior portion of

the food compartment) and with the water from the coil on the defrost cycle, tends to form a slime which eventually blocks the drain. Drano, etc., would cause food to taste, we believe.

"What can be used, or isn't there anything on the market suitable?"

John H. Spence, service manager of Hussmann Refrigeration, Inc., received a copy of our reply, with the request that he add his comments, since his company must have had similar inquiries from their dealers.

Spence's letter to the reader contained some very helpful and

practical suggestions, and is being quoted as follows, as there may be other readers who will benefit by it.

USE OF HOT SOAP WATER

"You do not state where the reach-in is located, but since your description of the trouble refers to grease being on the fin and tube coil and the coil drip pan, I am assuming that the reach-in is located in a kitchen where the doors are opened and closed a great many times during the day or even (as I have seen in many instances) the doors may be permitted to stand open where a lot of frying is being carried on.

"In kitchens where the refrigerator is exposed to atmosphere where frying of steaks, bacon, eggs, etc., the air is filled with grease, that will float into the box if the doors are opened a great many times during the day, or are permitted to stand open—even for as much as 30 seconds or more.

"If my assumption regarding the location of the refrigerator is correct, then there is no way in the world that the coil and drip pan can be kept free of grease and slime except to take the front off the blower coil housing about twice a year and clean the fin and coil drain pan by spraying it with a very highly concentrated hot soap solution, at the time that everything is removed from the refrigerator and the entire interior cleaned at the same time.

"Of course, you could use any of the cleaning solvents, but it isn't advisable to use cleaning solvents anywhere around a kitchen where foods may be contaminated either through the odor or having the cleaning solvent drop into or spill on the foods.

"As far as the drain pipe is concerned, if it is a galvanized or lead pipe there is certainly no objection to using such cleaning solvents as Drano because that particular chemical, or a similar one, is used by plumbers in cleaning out drain pipes, in the event they are not permitted to completely disassemble the drain pipe.

"Of course, you could use one of these long spring wires to twist into the drain pipe, which will automatically remove a lot of the scale and slime from the drain pipe; but, here again, this is generally a plumber's responsibility."

To this we may add that if steam is available, it can be used to excellent advantage for cleaning the coil and pan, and for blowing out the drain line.

USE OF LIVE STEAM OR SOLVENTS

Quite a few of the companies who render a service of periodically cleaning draught beer lines, have small portable boilers that they take right into the tavern and use in blowing out the beer lines with live steam. If there is such a beer line cleaning service available in your city, it could well be employed for cleaning the coils, drain pans, and drains in restaurant refrigerators.

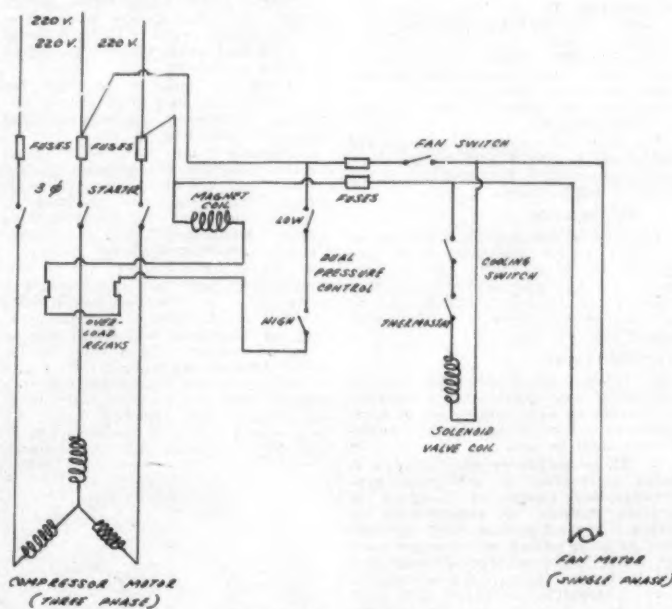
Grease from foods and from frying vapors is quite a problem in restaurants. It fouls the ventilating hood and ventilating fan. In air conditioned restaurants, the ducts, grilles, coils, fans, and drains sometimes get so greasy that the stale odor becomes noticeable.

In addition to a hot soap solution suggested by Spence, some of the detergents used in electric dishwashers are very effective. Such solvents as carbon tet, naphtha, etc., are ruled out because of odor; and in the case of naphtha, because of the danger of fire or explosion and in the case of carbon tet, because of its toxic qualities.

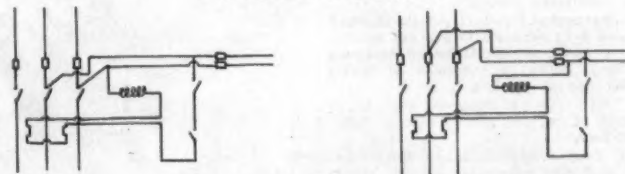
Some of the emulsion type solvents recently put on the market are quite effective; they are safe; and they have so little odor as to be practically unnoticeable.

You Asked About It

From the many requests for information it receives, the News will select and publish some of general interest. In many instances, the answers will be supplied by authorities in the industry. If you do have a question or problem concerning which you think the News might be able to help, be sure to state the problem clearly, and provide as much information as possible.



ORIGINAL DIAGRAM



ALTERNATE CORRECTIONS

Q. There seems to be an error in the line diagram (Fig. 5) of Paul Reed's recent article on "Across the Line Diagrams." The high and low pressure control wiring, as well as the holding coil circuit of the magnetic contactor are deprived of fuse protection. I do not feel this is in compliance with the National Electrical Code.—Carl Bachmann, Jamaica, N. Y.

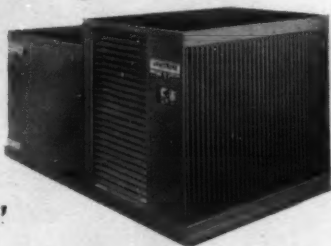
A. A controls manufacturer's engineer answers that "Bachmann is obviously a sharp-eyed man with electrical experience." The sketch shows the original drawing and alternate methods for fusing the controls. Each is preferable on some systems.

Make any air conditioning

prospect your
customer . . .

and save installation
time with

Armstrong "Frigipak"



Save up to 9 hours on every air conditioning installation with Armstrong's "Frigipak" the world's easiest-to-install air conditioner

You don't have to waste time soldering connections . . . fact is you have no on-the-job assembly at all with "Frigipak" air conditioners. "Frigipak" units are completely factory-assembled, ready to set-up and go!

You can make nearly any air conditioning prospect your customer, be-

cause versatile "Frigipak" fits nearly any residential or commercial building. "Frigipak" can be used as a single unit or as a split system and this flexible air conditioner comes in a full range of sizes.

Find out all about revolutionary Armstrong "Frigipak" air conditioners today. Just call your nearby Armstrong wholesaler. He'll show you how you can cut operating costs, take fewer business risks and make big profits in air conditioning with the Armstrong "Frigipak."

ARMSTRONG FURNACE COMPANY

Columbus 8, Ohio

Division of NATIONAL UNION ELECTRIC CORPORATION



We sell more
working hours per day!

FRANKELL'S HERMETIC COMPRESSOR OPENER

Now! 2 or 3 repair jobs can be accomplished at the same time. While Frankell's Hermetic Compressor Opener is automatically doing its job, you can turn this new found time into extra profits . . . faster service. Frankell's Hermetic Compressor Opener requires only 2 minutes of your time to open any shape compressor (up to 20" in dia.) — regardless of the position of the weld. It's as easy as A,B,C, — no previous experience is necessary — no special fixtures or jigs required. And when you open the compressor — the profits are big!

FRANKELL WILL NEVER FAIL YOU!
SEND FOR FREE LITERATURE TODAY

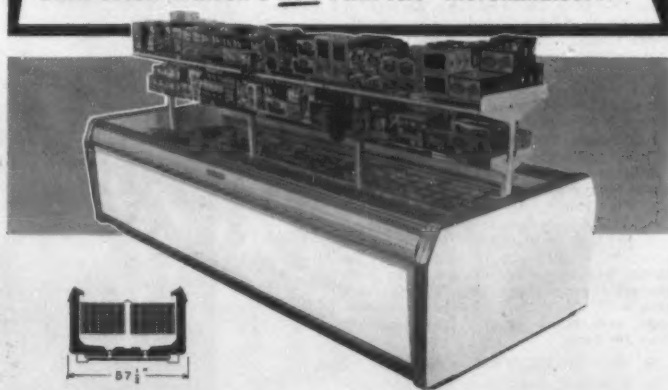
FRANKELL MFG. CO., INC.

1074 HOME STREET, NEW YORK 59, N. Y. WRITE DEPT. 3

ONE REFRIGERATOR WITH THE VARIETY OF TWO!

PROBLEM: Greater variety and adequate capacity

SOLUTION: Warren's new Twin-Isle* Merchandiser...



Warren's TWIN-ISLE is a revolutionary new merchandiser for displaying ice cream and frozen foods: one refrigerator offering two-side shopping from two compartments, each with five frozen-food packs across; 57½" wide over-all. Better merchandising, with twice the variety of a conventional low-temperature display case! What a liberal capacity, too! 2,316 frozen-food packs or 2,160 pints of ice cream. Most economical possible use of floor space and horsepower! No further need for expensive back-to-back case line-ups.

TWIN-ISLE Merchandisers feature Diamond Jubilee styling . . . COLORAMIC® Bands optional at no extra cost. Four-shelf merchandising canopies are offered for further utilization of floor space.

*Patent Pending

Warren Refrigerators

P. O. BOX 1436 • ATLANTA 1, GEORGIA
EXPORT DIVISION: P. O. BOX 27894, LOS ANGELES 27, CALIFORNIA

RACCA Agreements- 'Optimism May Harm Industry' --

(Concluded from Page 1, Col. 4)

When the top Federal court denied a motion to review a lower court ruling making it illegal for contractors to pay into union joint industry boards for the benefit of their employees, it in effect made the ruling law.

Sheet Metal Contractors Association of San Francisco had charged that Sheet Metal Workers International Association had violated a Taft-Hartley act provision. The 9th U.S. Circuit Court held that SMW Local 75 in Marin county (across the bay from San Francisco) threatened to encourage, cause, and induce members of SMW Local 104 of San Francisco to refrain from performing and to refuse to perform any service by going on strike, in order to collect 2½ cents an hour from Local 75's Joint Industry Board of Heating & Sheet Metal Industry of Marin, and adjoining counties.

It was found that board members from the union were in fact employe representatives and therefore barred by the T-H act from receiving money for employe benefit. (No further payments to the fund are now being made by Mechanical Contractors Association of Northern California and Associated Plumbing Contractors of San Francisco, following the Supreme Court decision.)

RACCA of Northern California indicated arrangements would "soon be made" to put funds it had been contributing to the board into a trusteeship.

Kromer stated that joint funds established between RACCA and UA in the eastern part of the U.S., and those patterned after them, "have been carefully scanned" by both local and national RACCA counsel and UA counsel with regard to legality and compliance with the T-H law.

He added that RACCA national is available for assistance to any local contractors' association in working out a legal joint committee plan and financing for the benefit of the industry and the public.

Room Unit Plan--

(Concluded from Page 1, Col. 5)

be done by distributor personnel, or "by outside shoppers if necessary."

However, Frank A. Teofani, vice president of Carleton-Stuart, and Joseph Greenstone, sales manager for room air conditioners, pointed out that the program was developed after dealers had requested protection for profits, and that effective operation of the program would depend greatly on how well the dealers cooperated with it.

The "guaranteed profit" program fits in with the Carleton-Stuart policy of franchising that is selective on a numerical, qualitative, and geographical basis, declares Teofani.

"We analyze the market carefully and we know how much of the market we think we should sell," says Teofani, "so we are able to plan the percentage of this total we think we should move through the air conditioning specialist, the better-type independent appliance dealers, and the chains and bigger retail outlets."

(Concluded from Page 1, Col. 5)

pointed out. "Without being a prophet of doom, I would like to point out that although our last seven years have been good, the last two years have been poor.

"Take window air conditioners for example. There were some 200,000 units sold in 1950. For each year through 1953, sales increased rapidly; but 1957 sales are below 1956.

HOME UNIT SALES DROP IN '57

"Then there is residential air conditioning. About 3,000 were sold in 1950; the sales doubled each year through 1953. But in 1957, sales were 15% under those of '56. These figures have been for the States and Canada.

"In the States alone, there was less commercial refrigeration sold in 1957 than in 1950—seven years before. This downturn probably does not apply to Canada where your general growth pattern is different than in the States."

Morrill stressed that such leveling off of business is not cause for extreme pessimism, but he insisted that the facts must be faced by the industry if there is to be an intelligent program to reverse the trend. "If we allow ourselves to be hypnotized by rosy predictions, we may sit by waiting for business, rather than actively help solve our problems," he said.

'POTENTIAL IS THERE'

"The potential is there, no doubt about it," Morrill continued. In North America: less than 2% of the homes, less than 2% of cars, less than 5% of offices, and less than 1% of factories have air conditioning.

"Why is this? Chiefly because of ignorance on the part of the potential consumer.

"People do not know the cost and advantages of air conditioning. In a recent Du Pont survey, 64% of the people questioned could not even hazard a guess as to what an air conditioning system in the home would cost.

"The average owner or renter is not convinced that the advantages of air conditioning are worth the cost—whatever that may be. He is not aware of the fact that the average city household picks up 100 lbs. of dirt and dust per year.

The factory owner does not know that a 2% increase in production is all that is needed to pay for the operation cost of air conditioning, and that in practice 15 to 50% increases in productivity have been realized.

Morrill mentioned the broad-scale educational program being prepared by the Air-Conditioning & Refrigeration Institute as a step in the right direction. He insisted, however, that individuals have the greatest power to affect industry sales.

'CAN DOUBLE CENTRAL SALES'

"For each RSES member in the States and Canada in 1957, there was about \$350,000 in sales," Morrill estimated. "If each member talked to one businessman or homeowner every other week, we could double central air conditioning in one year.

"But there is another problem," Morrill warned. "Suppose we were able to double sales next year. Is the industry in a position to handle the increased volume? There is much room for improvement.

"There are several points which immediately come to mind:

First, we have to heal the black eye given the industry by the poor and sometimes false ratings used on air conditioners. Let's give realistic ratings in B.t.u.h.

'POOR SELLING TECHNIQUE'

"Second, there is the problem of poor selling technique which is too prevalent in our industry. We sometimes act as though we have more business than we know what to do with. We don't follow up on leads, we don't sell our products like we believe in them.

"Third, we should begin designing our units and products for easier and less costly installation. One major company has very recently taken an important step in this direction.

"There is great room for improvement in the over-all quality of our products—both at the manufacturing and at the installation level.

'COORDINATE EFFORT'

"There should be a coordination of effort among the several groups and associations in the industry, especially with respect to general education. In this regard, the active cooperation among RSES, ASRE, and ARI in the States is a good example of such cooperation."

Morrill suggested that some of the problems of the refrigeration and air conditioning industry may have arisen because the industry experienced a sudden growth without the normal development period through which industries usually go.

"In spite of this sudden growth, though," he asked, "are we doing things the way we were doing them 20 years ago?"

"Let's not assume that our industry must inevitably follow its past history, good or bad," Morrill warned.

'59 ARI Show--

(Concluded from Page 1, Col. 3)

The gigantic building of Atlantic City's Boardwalk where the products of the industry will be displayed is undergoing a \$2 million expansion and re-decoration program which will be completed before the November 1959 exposition, according to George Mills, ARI show director, who made arrangements for the space following the decision of ARI's board of directors.

When the expansion of the Atlantic City hall is completed, it will afford approximately 105,000 sq. ft. of net usable exhibit space on the ground floor—about 10,000 ft. more than were used by the 10th Exposition last November at Chicago's International Amphitheatre.

The 9th Exposition, held in the Atlantic City building in 1955, crowded the then existing facilities of the ground floor with about 85,000 sq. ft. of exhibit space, Mills said.

Bans Boycotts--

(Concluded from Page 1, Col. 5)

partial umpire who was former U.S. mediation chief. He would then recommend a decision.

At the same time, conferring here, building unions and contractors agreed on a national program to eliminate feather-bedding and other abuses that add dollars to construction.

Hammered out after three years of joint study, the labor-management agreement was developed by a joint committee made up of president of major building unions and officers of the 24-member National Constructors Association (New York City) that does 90% of heavy industrial building.

AIMED AT HALTING WORKER ABUSES

The program is "aimed at such specific abuses as feather-bedding, early quitting time, and unnecessary absenteeism."

A specific code of rules to guard against overloaded payrolls will be worked out by Richard J. Gray, leader of 3 million union building mechanics and his associates. It will be based on basic principles agreed upon by the contractors.

"There will be no holdback in use of technological advances," is one of these principles. It is claimed union resistance to labor-saving tools has long been a source of complaint in the building industry.

Third development was a new peace formula for resolving jurisdictional disputes in factory maintenance and construction activities. It was worked out by George Meany, president of AFL-CIO, in association with special committees headed by Gray and Walter P. Reuther, head of the Industrial Union Div. (IUD) of AFL-CIO. It specified that all new construction in the industrial field was to be done by building unions. Industrial unions will have control over day-to-day maintenance and production work.

JURISDICTION NOT DEFINED

However, no effort was made to define jurisdiction over the so-called "doubtful area" between these two types of construction activity. Included in this would be major repairs and plant changeovers. The agreement provides that in conflicts affecting such work decisions shall be made "on the basis of established past practices on a plant, area, or industry basis."

Meany said recourse to arbitration as a means of providing a binding settlement would be preferable to the involved formula set up under the agreement. But he voiced hope that it would aid in solving "the very vexing problems which confront us in this area."

David J. McDonald, president of the United Steelworkers of America, agreed that the formula represented "a substantial forward step." He added that the plan would be applicable to the dispute that has caused heavy losses to the Burt Mfg. Co. of Akron, Ohio, maker of ventilating equipment. The Sheet Metal Workers International Association has been boycotting Burt products because the company's plant is manned by members of USW.

AAF Fire--

(Concluded from Page 1, Col. 4)

Already, the AAF spokesman explained, American Air Filter has leased a vacant plant here and expected to be in limited production in the plant within two weeks and full manufacture in about a month. A receiving department has been set up at the new plant and supplies and equipment are coming in, he added.

Cause of the blaze was not immediately determined. Brisk winds fanned the fire, showering embers and sparks over a wide area.

About 50 persons were employed at Plant 2, one of four AAF plants in Louisville. In all, AAF has 11 plants in seven cities.

Robert Nelson, American Air Filter vice president, said the company's loss is covered by insurance.

NOW...

SERVICE ALL TYPES
OF HERMETIC UNITS

with One Valve!

**THE NEW
KEROTEST
HERMETIC
SERVICE KIT**



*Note these
Features*

- ★ Eliminates the need for a separate valve for each hermetic unit serviced. Master valve is furnished with adaptors and stem extensions to service specific units.
- ★ Stainless steel stem provides long service life—at no added cost.
- ★ Available with or without compound gauge in large heavy gauge steel box.
- ★ Many other time and cost saving features.

See your Kerotest wholesaler today.

Ask for No. 4321 or 4321G (with gauge).

KEROTEST

KEROTEST MANUFACTURING CO.

2502 Liberty Avenue
Pittsburgh 22, Pa.

PATENTS

Week of October 29
(Concluded)

2,811,006. AIR DISTRIBUTING REGISTER. Robert L. Leigh, Grand Rapids, Mich., assignor to Air Control Products, Inc., Grand Rapids, Mich.

14. A wall register comprising a frame member having a central panel portion, a plate member, said members having cooperating interengaging portions connecting the periphery of the plate member over the central portion of the frame and in spaced front to rear relation thereto, parallel fins



struck from the central panel portion of said frame member, parallel fins struck from said plate member, the fins on the panel portion extending at an angle to the fins on the plate member, and a damper pivoted on the rear of one of said members to close over the fins on the rearmost member.

2,811,128. LIQUID INDICATOR FOR TUBING. George E. Fracck, Riverside, Ill., assignor to The Imperial Brass Mfg. Co.

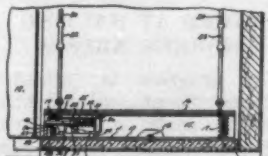
1. A liquid indicator comprising: a

body member having a liquid conducting passage therethrough and means for viewing the passage through one portion of the wall thereof, said body member further having an internal recess opposite said one portion and opening into said passage, said recess being provided with opposite side portions; and indicating means in said recess to be viewable through said viewing means, said indicating means including a U-shaped clip having a



base with spaced legs upstanding therefrom, outwardly extending, sharp prongs on said base arranged to dig into said recess side portions to secure the clip fixedly to said body member.

2,811,119. SAFETY MEANS FOR REFRIGERATORS, ETC. William S. Ferdon, Birmingham, Ala.

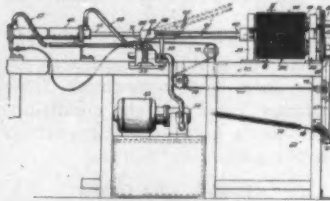


1. In a cabinet having a door movable from an open to a closed position, a bottom wall within said cabinet movable from an upper to a lower position, a reciprocal plunger mounted in said cabinet and movable into the path of closing movement of said door to block closing of same, resilient means normally urging said plunger to door-blocking position, and means associated with said plunger operative to lock same in its door-blocking position when said bottom wall is in

its lower position, whereby to maintain said door against closing.

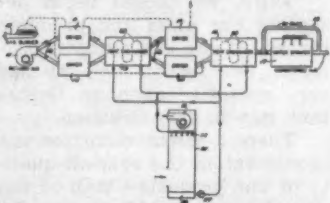
2,811,304. APPARATUS FOR MAKING HEAT TRANSFER COILS. Richard W. Kritzer, Chicago, Ill.

1. Apparatus for making heat-exchange units which embody cross-fins and tubing extending through the fins, comprising: a series of holders on which continuous strips of fin-stock are wound, and in number corresponding to the number of fins in the heat-exchange unit; die-means in which complementary areas of the leading por-



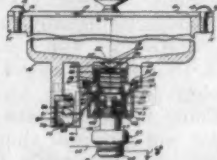
tions of the strips of the entire series are individually supported and confined in spaced relation for piercing; a tool for piercing openings for the insertion of tubing in said areas of the leading portions of the strips, provided with means for inserting tubing in said openings and leaving the tubing assembled with the strips.

2,811,223. METHOD OF CONDITIONING AIR. Alvin B. Newton, Wichita, Kan., assignor to The Coleman Co., Inc., Wichita, Kan.



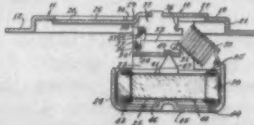
1. In the treatment of air for human comfort, the method of conditioning water-vapor containing air characterized by the steps of contacting the air to be conditioned with an adsorbent for water vapor to reduce the water vapor content of the air while increasing its sensible heat content, removing sensible heat from the air, again contacting the air with an adsorbent for water vapor, thereafter again removing sensible heat from the air, then converting liquid water into water vapor by contacting the liquid water with part of the air to reduce still further the sensible heat content of the air while increasing its content of water vapor, and mixing portions of the air of increased water content with portions of the rest of said air.

2,811,286. LIQUID MEASURING AND DISPENSING DEVICE. Carl C. Banerlein, Lincolnwood, Ill., assignor to The Dole Valve Co., Chicago, Ill.



12. In a liquid measuring and dispensing device for dispensing a predetermined volume of liquid during each dispensing operation, an expandable and collapsible measuring chamber, an inlet into said chamber, a check valve associated with said inlet permitting the passage of a predetermined volume of liquid through said inlet into said chamber upon expansion of said chamber but preventing the passage of liquid from said chamber through said inlet upon collapsing of said chamber, an outlet from said chamber, a check valve associated with said outlet permitting the passage of said predetermined volume of liquid from said chamber through said outlet upon collapsing of said chamber but preventing the passage of liquid from said outlet into said chamber upon expansion of said chamber.

2,811,312. COOLING SYSTEM THERMOSTATICALLY OPERATED VALVE. Samuel G. Eskin, Chicago, and Thomas B. Legesa, Westchester, Ill., assignors to The Dole Valve Co., Chicago, Ill.



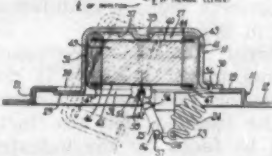
1. In a thermostatic valve, a valve casing having a port opening, a valve pivotally carried by said casing for closing said port opening, a spring biasing said valve into position to close said port opening, an amplifying lever pivoted to said casing for movement about an axis parallel to the axis of movement of said valve, a link pivotally connecting said lever with said valve

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D. C.

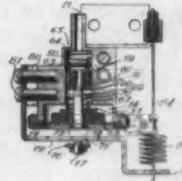
to pivot said valve in a valve opening direction upon pivotal movement of said lever arm in one direction, a thermal element loosely carried by said valve casing for slidable movement with respect thereto and having a casing, spaced inner and outer expandable disks closing said casing and a thermally expandable fusible material contained within said casing between said disks.

2,811,313. THERMOSTATICALLY OPERATED VALVE. Thomas B. Legesa, Westchester, Ill., assignor to The Dole Valve Co., Chicago, Ill.



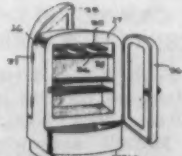
1. In a thermostatic valve, a valve casing having a flat annular portion, the inner margin of which defines a port opening, a shaftless butterfly valve pivotally carried on said casing and engaging half of one side of said flat annular portion and half of the other side of said flat annular portion for closing said port opening, said valve having a receptacle formed integrally therewith having a generally cylindrical wall and opening in a downstream direction and closed on the upstream side of said valve, a spring connected between said casing and valve and biasing said valve into a closed position, a thermostatic element slidably carried in said receptacle and comprising a casing having a cylindrical wall slidably engageable with the wall of said receptacle and containing a fusible thermally expandable material and having spaced inner and outer expandable disks retaining the thermally expandable material within said casing, the inner of said disks reacting against the closed end of said receptacle and moving said thermostatic element outwardly with respect to said receptacle upon increases in temperature.

2,811,314. VACUUM CONTROL VALVE. James K. Lund, Oak Park, Ill., assignor to The Dole Valve Co., Chicago, Ill.



1. In a vacuum control valve, a valve casing having a valve chamber therein, a member having a passageway extending therealong defining an outlet into said chamber, a check valve at one end of said member, closing said outlet upon a reduction in vacuum at the source below the vacuum in said chamber, a second valve engageable with the opposite end of said member from said check valve to close said outlet, a spring biasing said second valve in a direction to close said outlet, a vacuum equalizing chamber in communication with said outlet under the control of said second valve.

2,811,405. REFRIGERATOR. Leonardo Obregon Formoso, Mexico City, Mexico.



1. A refrigerating apparatus including a base and an upstanding rim having its lower end adapted to rest upon a floor surface, a refrigerator including a bottom, a top, and two pairs of opposed side walls positioned so that

the bottom straddles the rim of said base, means connecting said refrigerator bottom to said base rim for free rotation about said rim as an axis.

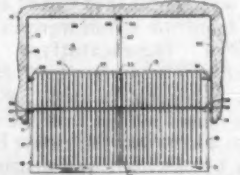
2,811,406. GASKET. Robert Edmund Moore, Whittier, Calif., Warren R. Bower, Evansville, Ind., and Donald Frederick Williams, Columbus, Ohio, assignors to Amara Refrigeration, Inc., Amara, Iowa.



3. A gasket of uniform cross section comprising a base, a multi-walled section partially overlying said base and defining a plurality of cavities, a side wall extending obliquely upward, a flat top wall substantially horizontal to the plane of said base, said top wall terminating in a point with said side wall, said built-up section being integral with said base at one edge thereof.

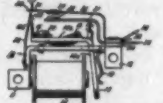
2,811,407. CABINET SHELF. Robert F. Moore and Francis A. Noll, Cedar Rapids, and Paul A. Zimmerman, Amara, Iowa, assignors to Amara Refrigeration, Inc., Amara, Iowa.

6. In combination with a refrigerator cabinet, a removable shelf assembly comprising a substantially rectangular member, rear and side walls on said cabinet, lateral support means for said shelf extending from said side walls, said lateral support means compris-



ing oppositely disposed first supports above said shelf, oppositely disposed second supports below said shelf comprising a first member and a second member oppositely disposed and horizontally aligned, said first member having a transverse slot therein normal to the longitudinal axis thereof and said second member having a smooth top surface, said shelf being slidably mounted in said slot and on said smooth top surface, and a third support removably attached to said rear wall and movably attached to said shelf.

2,811,601. LATCHING RELAY. William F. Somers, Schenectady, N. Y., assignor to General Electric Co., a corporation of New York.



1. An electromagnetic relay comprising a frame, an electromagnetic coil mounted upon said frame, an armature pivotally mounted upon said frame, a detent mounted upon said armature, a fixed contact member, a movable contact member biased to make engagement with said fixed contact member, and a movable latching member biased to make engagement with said movable contact member, said latching member and said movable contact member having cooperating stepped ends and said latching member having a catch engageable by said detent whereby in a first position the stepped portion of said latching member holds said movable contact member out of engagement with said fixed contact member and the stepped portion of said movable contact member with the catch engageable by said detent to move said latching member out of engagement with said movable contact member.

DESIGNS
181,319. REGULATING VALVE. Wayne H. Schmatz, Elkhart, Ind., assignor to Penn Controls, Inc., Goshen, Ind.



NO FLOOR DRAIN?

INSTALLING
AIR CONDITIONER
ICE CUBE BIN
DRINKING
FOUNTAINS
BUY THE BEST
KESCO
AUTOMATIC
CONDENSATE
WATER DISPOSAL
PUMPS
1/30 H.P. to 1/3 H.P.
10 ft. to 50 ft. Head
At Your Wholesaler

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

POSITION WANTED: As field engineer or agent. Coverage: Missouri, Illinois. Products: commercial, residential air-conditioning and allied equipment. Experience: Taught air conditioning three years. Sales manager with cooling tower manufacturer ten years. With distributor air-conditioning and heating equipment four years. References furnished. BOX A5972, Air Conditioning & Refrigeration News.

MANUFACTURER'S REPRESENTATIVE and sales engineer interested in air conditioning, heating and commercial refrigeration lines in New England Area. 12 years' association with the industry, calling on wholesalers, manufacturers, contractors. Office located Boston. If you desire a change in representation and want good coverage, write BOX A5973, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

WANTED EXPERIENCED sales engineer, salary and expenses. CENTRAL ICE MACHINE COMPANY, 5014 South 24th Street, Omaha, Nebraska. Phone Market 4690.

SERVICE MANAGER: For well established air conditioning, heating, refrigeration and ventilation contractor, handling brand name products. An excellent opening for an experienced man with a refrigeration background, capable of directing and supervising mechanics and handling customers. Write giving age, experience, recommendations, etc. to CONDITIONAIRE, INC., P. O. Box 4647, Jacksonville, Florida.

SALES MANAGER—Rare opportunity with major corporation to organize a group selling to the air conditioning and refrigeration industries. Technical background in field sales engineering; must be capable of selecting, training, and developing an effective sales force in a highly competitive field. Age: in the thirties. Location: metropolitan New York. Salary: will match performance. All replies will be kept in strict confidence. BOX A5963, Air Conditioning & Refrigeration News.

CHIEF ENGINEER: Unusual opportunity with Midwest manufacturer of valves and controls for refrigeration, air conditioning, gas and oil heating. Will be responsible for direction of

complete engineering program. Proven administrative ability essential. Substantial experience in this field required. Record of creative accomplishment desirable. A top level assignment with progressive dynamic organization. Reply in confidence, giving education, experience, personal data, etc. BOX A5968, Air Conditioning & Refrigeration News.

NEW YORK City air conditioning dealer, volume ten million wants sales manager. Wonderful opportunity for producer. BOX A5974, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

THERMO KING users RL30 units, equipped with Waukesha Engines. 121136B Stellite exhaust valves, set of 4 \$10.50 postpaid. 121110A standard rod bearings, set of 8 \$3.00 postpaid. 121012A crankshaft gear \$1.75 each postpaid. H. L. BOGESS & SONS, Liberty, Missouri.

REPLACE YOUR tool box with a Handi-Roll! Sturdy, water-resistant duck. Ample tool capacity. Not a catch-all. Minimum carrying-weight, with locking strap and handle. Price \$5.95. Send for free folder. See your jobber, or send check to HANDI-ROLL COMPANY, 12381 Wisconsin Avenue, Detroit 4, Michigan. Postpaid.

LATEST STYLE 57 production 1 h.p. 230 V. single phase 50/60 cy. Freon-12 hermetic compressors Model AS1T16 air conditioning HRP. Complete with Klison overload, relay, starting and running capacitor. \$59.00 ea. Send for free circulars and bulletins on air conditioning and refrigeration values. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

SURPLUS AIR conditioners for sale: Self contained, hermetically sealed, 1 1/2 ton central home air conditioners, 15,750 B.T.U.'s, air cooled, completely assembled and wired, new in original crates \$165.00 each. F.O.B. York, Pennsylvania. Contact: Wm. A. Hewett YORK-SHIPLEY, INC., York, Pa. Phone: 7871.

BUSINESS OPPORTUNITIES

FOR SALE: Old, established commercial refrigeration, air conditioning sales and service on main street of town of 35,000 population Columbia Basin area. Long-time lease on building and dwelling. Will sell at inventory. Write BOX A5969, Air Conditioning & Refrigeration News.

AIR CONDITIONING and heating business grossing \$170,000 per year in growing Florida community. Have national brand franchises and contract for 80 installations. Owner in poor health. Will sell to qualified party only. Write BOX A5975, Air Conditioning & Refrigeration News.

Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Cadillac auto air conditioner is the fourteenth make to be discussed in this series. Makes previously described were A.R.A., Artic-Kar, Frigette, Frigikar, Kauffman, Mark IV, Airtemp, Mobilette, Novi, Vornado, Polar-Temp, American Motors, and Buick.

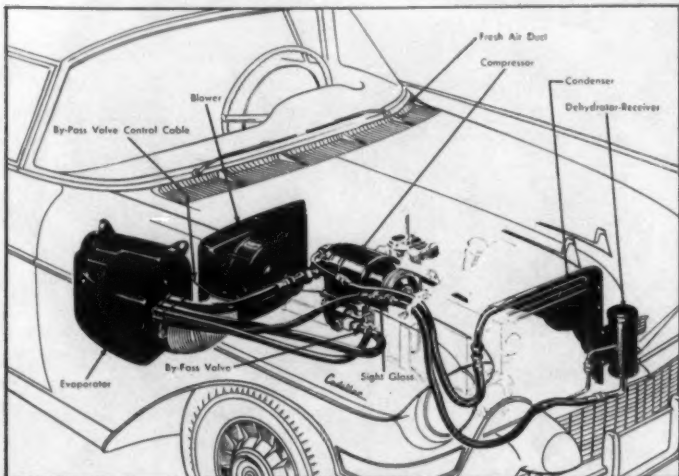


FIG. 1 shows location of major components of front-end system employed by Cadillac in 1957 on all except its series 75 cars. Latter have a trunk-mounted evaporator, but condensing unit arrangement is as pictured above.

Cadillac (1)

Cadillac Motor Car Co.
General Motors Corp.
Detroit 32, Mich.

Two types of air conditioners were offered by Cadillac in 1957 as a factory-installed accessory or a package kit for installation by its distributors or dealers.

A front-end type system (Fig. 1) was introduced in 1957 as the standard design for all 1957 Cadillac cars except the series 75 cars. In the front-end system the evaporator assembly is mounted on the right side of the

cowl under the front fender.

On series 75 cars the 1957 evaporator assembly is located in the trunk directly below the package shelf.

Compressor mounts on the right cylinder block of the engine and is driven through a magnetic clutch. Condenser is located in front of the car radiator.

Refrigerant-12 is employed by the Cadillac air conditioner. Charge is 4 lbs. in the 1957 models—both front-end and trunk systems.

Compressor

Compressor used on 1957

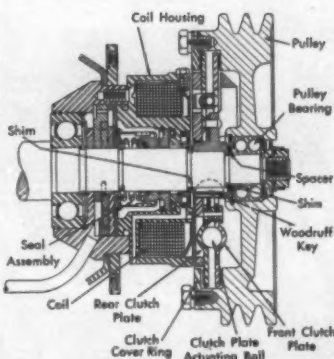


FIG. 2—Cross-section drawing of magnetic clutch and compressor seal on 1957 Cadillac air conditioner.

Cadillac conditioners is the Frigidaire 5-cylinder reciprocating type unit.

Discharge service valve is located on the back of the compressor opposite the flywheel end.

Suction service valve is located on the hot gas by-pass valve mounted on the lower right side of the compressor.

A magnetic clutch (Fig. 2) is standard on 1957 Cadillac units.

An oil check fitting is provided on this Frigidaire compressor. To check oil level first operate engine at slow idle for 5 to 7 minutes with air conditioning turned on and blowers at maximum speed.

Loosen screw in oil test fitting to allow a little oil to escape. Then tighten the screw for a moment before cracking it slightly again. If there is a steady flow of oil, the oil level is at or above the safe minimum charge of 4 oz.

If no oil flowed out of the test fitting, oil must be added to the compressor. To add oil, first remove compressor from the car, then remove oil test screw. Invert compressor and drain remaining oil into a clean container.

Should an excessive amount of water be found in this oil, Cadillac advises, a new receiver-drier should be installed.

Add 6 oz. of new Frigidaire 525 viscosity oil to the compressor through the oil test fitting, then replace the oil test screw and re-install the compressor.

Condenser

Condenser is located in front of the car radiator. Inlet and outlet of the condenser are on the right (curb) side, but the combination receiver and drier unit is mounted on the left side.

Sight glass on 1957 Cadillac systems is located in the liquid line in the engine compartment.

Evaporator

The 1957 front-end Cadillac evaporator assembly is mounted on the right side of the cowl under the front fender. Housed in the evaporator assembly is the evaporator coil and thermostatic expansion valve.

Blower of the front-end system is housed separately to the

left of the evaporator housing. Blower motor is of three-speed design. The blower pulls outside air in through a cowl vent directly below the windshield. It forces air through a flexible duct to the evaporator housing, whence the cooled air is delivered to the passenger compartment through three outlets on the top of the car instrument panel and two outlets below the instrument panel.

The three upper outlets have individually controlled doors for adjusting direction and amount of air flow.

Trunk-mounted evaporator assembly, employed on 1957 series 75 Cadillacs only, includes the cooling coil, expansion valve, and two three-speed blowers.

A limited amount of outside air is provided for the trunk-type unit through air scoops located in each side of the body by the rear window. Air is circulated by the two blowers connected to either side of the evaporator assembly and is delivered to the passenger compartment through concealed roof ducts to four outlet grilles.

(To Be Continued)

RACCA-UA

To Set Up Bay Area Journeyman Training

OAKLAND, Calif.—East Bay refrigeration contractors start meeting soon with representatives of Steamfitters and Refrigeration Union, Local 342 U.A., to set up a committee on journeyman training.

Herschel May of Berkeley, chairman of RACCA's negotiating committee for the east bay, said an increase provided for in the new contract is to help meet expenses of journeyman training.

Refrigeration apprentice training program in the east bay is now handled by the steamfitters joint apprenticeship committee, it was added.

Until recently the program was sponsored by a separate refrigeration joint apprenticeship committee.

Wholesaler Operates Despite Fire Damage

HOPKINSVILLE, Ky. — Despite heavy fire losses when local Cayce Mill Supply Co., mill and industrial supplies, hardware, electrical, plumbing, and heating wholesale distributor, was razed recently, the company reports it has "already acquired" temporary warehouse space and is back in operation again.

"It is most gratifying to know the wonderful way our local friends, manufacturers, and competitors helped us return to business so quickly," commented Robert C. Cayce, vice president.

He said manufacturers offered immediate stock replacements which began arriving three days after the loss.

Competitors aided in making available merchandise, shipment to customers, and truck delivery to customers, Cayce added. "Truly a wonderful profession to have such helpful and thoughtful competitors and manufacturers!" he exclaimed.

In what is believed to be the most costly fire in Hopkinsville's history, flames originated in a small printing office and raced through Cayce Mill Supply, razing it in less than an hour with damages exceeding \$250,000. Two were injured, though not seriously.

Riley Nominated by New Savannah ASHAE Chapter

SAVANNAH, Ga. — The Savannah Chapter of the American Society of Heating & Air-Conditioning Engineers was presented with a charter recently by P. B. Gordon of New York, national president, and principal speaker for the occasion.

The nominating committee presented a slate of officers for election as follows: R. L. Riley, president; S. H. Ball, vice president; Roland Kinser, secretary; Earl F. Young, treasurer; and Ken Goddard and Arthur Gnann, directors.

INVALUABLE!—NEW! AUTHORITATIVE!
10-DAY FREE TRIAL!

Auto Air Conditioning Service Information at Your Finger Tips

152 pages—detailed diagrams—complete service data. All 17 nationally-known auto air conditioning units described in detail. Manufacturer-recommended servicing tips covered fully. Increase your income with this handy manual of service information on these famous names:

A.R.A. • ARTIC-KAR • FRIGIKAR • FRIGIQUIP
MARK IV • MOBIL-AIRE • NOVI • PIVOT
BUICK • CHEVROLET • CHRYSLER • PLYMOUTH
FORD • LINCOLN-MERCURY • NASH • OLDSMOBILE
PONTIAC.

This money-making manual can be yours simply by filling out the coupon below. If not completely satisfied, return your copy within 10 days and your money will be refunded.

Air Conditioning & Refrigeration News

450 WEST FORT STREET
DETROIT 26, MICHIGAN

Please send me my copy of "Servicing Automobile Air Conditioners" at \$2.00 each.

- ☐ My check is enclosed
☐ Please bill my company
☐ Please bill me

NAME.....
COMPANY.....
STREET.....
CITY.....ZONE.....STATE.....

"Manual sent postpaid if remittance enclosed." 2-17-58

SEND FOR
YOUR MANUAL
TODAY!

MARSH Instruments

THE SERVICEMAN LINE of Testing
Gauges, Testing Thermometers, Tim-
ers, etc.

PRESSURE GAUGES and Dial Ther-
mometers for all services.
MARSH-ELECTRIMATIC, Water Regu-
lating Valves, Solenoid Valves.

MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D., Skokie, Ill.

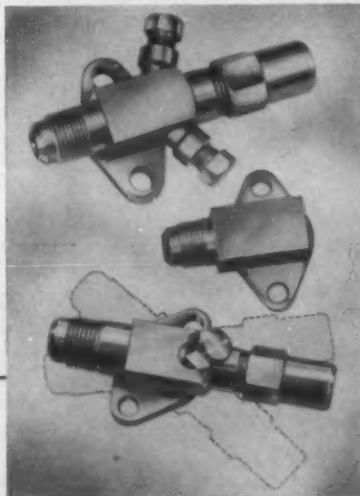
COMPRESSOR PAD VALVES and PAD FITTINGS STATIONARY OR SWIVEL TYPE

Made in 3 sizes with 1 1/2"-1 3/4"
and 2" Bolt Centers

Swivel Pad Valves may be
set at an angle to corre-
spond with tubing...
Ideal for Automotive Air
Conditioning Systems
where space limitations
exist.

All Pad Valves feature the
Primore exclusive, a spe-
cially designed
flange with a
high unit pres-
sure seal-off
pad.

Write for illus-
trated catalog.



Made in all standard Flare and
Sweat sizes.

Single or double 1/4" Flare or
1/2" Pipe Gage Connection.

Precision manufactured Hydro-
gen Brazed Steel construction
cuts cost.

Other Primore Valves avail-
able: Base, Angle, Receiver,
Rotalock, Breakaway.

Primore Sales, inc.
2460 S. Main Street • Adrian, Michigan

REFRIGERATION
designing
sales
engineering

HUSH Money!

15 H.P. UNIT

This photo was taken while the 15 HP unit was operating at full power . . . and the coin didn't toss!



BRUNNER-METIC

AIR CONDITIONING MOTOR COMPRESSORS CAPACITIES from 1½ to 15 H.P.

One nickel isn't much help these days . . . but this one pays off handsomely by showing why a Brunner-Metic Air Conditioning Motor Compressor **KEEPS QUIET** when it's running . . . smooth, smooth operation.

A unit that's dynamically and statically balanced assures quiet, steady, reliable performance.

Select from the extensive Brunner-Metic line to get this important bonus and several others.

BRUNNER also offers the *widest range of units* . . . meaning that a combination of any *two* Brunner-Metics will meet practically any capacity demand—at far less expense!

The units are of smaller dimensions and weigh less than any comparable unit, greatly facilitating installation. They are suction gas cooled, giving greater durability and longer life to the vital motor windings. Bolted construction permits easy take-down for servicing, and simple, speedy removal of valve plates for inspection.

For more information on the complete line of Brunner-Metic Air Conditioning Motor Compressors, contact us. A staff of over 100 sales engineers is available to give you technical assistance.

REFRIGERANT 22

2 CYLINDER

COMPRESSOR	1½ H.P.	2 H.P.	3 H.P.	5 H.P.	5 H.P.	7½ H.P.	10 H.P.	15 H.P.
MODEL NO.		20 HF	30 HF	45 HF	50 HF	75 HF	100 HF	150 HF
NO. CYLINDERS		V-2	V-2	V-2	V-4	V-4	V-4	V-6
BORE & STROKE		1½" x 1½"	1½" x 1½"	2¼" x 1½"	1½" x 1½"	2" x 1½"	2¼" x 1½"	2¼" x 1½"
DISPLACEMENT		5.80 CFM	7.75 CFM	11.29 CFM	13.5 CFM	18.80 CFM	22.60 CFM	33.90 CFM
LENGTH—IN.		17½"	18½"	18½"	22½"	22½"	22½"	27½"
WIDTH—IN.		12½"	12½"	12½"	14"	13½"	13½"	14"
HEIGHT—IN.		11¾"	11¾"	11¾"	13¾"	13¾"	13¾"	14½"
NET WEIGHT		135 Lbs.	150 Lbs.	160 Lbs.	235 Lbs.	245 Lbs.	255 Lbs.	310 Lbs.
*CAPACITY		30,000 Btu/hr	41,500 Btu/hr	62,000 Btu/hr	71,200 Btu/hr	99,200 Btu/hr	122,300 Btu/hr	177,500 Btu/hr

REFRIGERANT 12

4 CYLINDER

COMPRESSOR	1½ H.P.	2 H.P.	3 H.P.	5 H.P.	5 H.P.	7½ H.P.	10 H.P.	15 H.P.
MODEL NO.	15 H	20 H	30 H		50 H	75 H		
NO. CYLINDERS	V-2	V-2	V-2		V-4	V-6		
BORE & STROKE	1½" x 1½"	1½" x 1½"	2¼" x 1½"		2" x 1½"	2" x 1½"		
DISPLACEMENT	5.80 CFM	7.75 CFM	11.29 CFM		18.80 CFM	26.30 CFM		
LENGTH—IN.	17½"	17½"	18½"		22½"	26¾"		
WIDTH—IN.	12½"	12½"	12½"		13½"	13½"		
HEIGHT—IN.	12¾"	11¾"	11¾"		13¾"	14½"		
NET WEIGHT	135 Lbs.	150 Lbs.	150 Lbs.		245 Lbs.	290 Lbs.		
*CAPACITY	19,800 Btu/hr	26,500 Btu/hr	42,500 Btu/hr		66,300 Btu/hr	93,800 Btu/hr		

*45° EVAP. 110° COND. TEMP.

†INCLUDING MOUNTING SPRING

Dunham-Bush, Inc.

WEST HARTFORD 10 • CONNECTICUT • U. S. A.

MICHIGAN CITY, INDIANA • MARSHALLTOWN, IOWA • RIVERSIDE, CALIFORNIA • BRUNNER DIVISION, UTICA, NEW YORK

SUBSIDIARIES

HEAT-X, INC.
BREWSTER, N.Y.

THE BRUNNER CO.
GAINESVILLE, GA.

DUNHAM-BUSH (CANADA), LTD.
TORONTO, CANADA

DUNHAM-BUSH, LTD.
LONDON, ENGLAND

BRUNNER CORPORATION (CANADA) LTD.
PORT HOPE, ONTARIO

DUNHAM-BUSH

heat-x

BRUNNER
SINCE 1898